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QUANTITATIVE ANALYSIS OF DEFECTS IN
SILICON

Silicon Sheet Growth Development for the Large
Area Silicon Sheet Task of the Low-Cost Solar Array Project

QUARTERLY PROGRESS REPORT NO. 4

by

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NEW TECHNOLOGY

No new technology is reportable for the period covered by this report.

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SECTION I

SUMMARY

This report describes the various steps involved in the chemical polishing and etching of Motorola silicon samples. Data on twins, dislocation pits, and grain boundaries from thirty one (31) Mobil Tyco silicon sample numbers 47 to 77 are also discussed.

A brief review of the changes made to upgrade the Quantimet 720 Image Analysis System is included in this report.

SECTION II

INTRODUCTION

The objective of this program is to evaluate and, if possible, predict conversion efficiency for a variety of silicon samples with differences in structural defects, such as grain boundaries, twin boundaries, precipitate particles, dislocations, etc. Quantitative characterization of these structural defects, which have been revealed by etching the surface of silicon samples, can then be performed by using a Quantimet 720 Image Analyzer.

The silicon samples have been obtained by JPL from different manufacturers. Each of these manufacturers use their own crystal growth and fabrication techniques and, therefore, the various types of silicon produced contain a variety of trace impurity elements and structural defects. The two most important criteria in evaluating the various silicon types for solar cell applications are: (i) cost and (ii) conversion efficiency. At present, the solar cells with highest conversion efficiency are made of high purity silicon single crystals, which are free from structural defects such as dislocations, twin boundaries, precipitate particles, etc. But these single crystal solar cells are very expensive and may not meet the DOE goal of 50 cent/watt by 1986. On the other hand, silicon crystals such as EFG ribbons, Dendritic Webs, etc. are NOT single crystals but made of highly ordered crystals which contain large number of dislocations, twin boundaries, grain boundaries, precipitates, etc., compared to the premium grade silicon.

The following important questions must be answered to evaluate the conversion efficiency of low cost and high cost silicon: (i) What effect do these defects have on conversion efficiency of low cost and high cost silicon? (ii) Of the various types of defects, which defect/defects severely affects conversion efficiency? (iii) At what concentrations does this effect become significant? (iv) Is there a rapid, accurate, quantitative method that can be used routinely as a Quality Assurance tool?

Quantitative analysis of surface defects is being performed by using a Quantimet 720 Quantitative Image Analyzer. This system can differentiate and count 67 shades of gray levels between black and white contrasts. In addition, it can characterize structural defects by measuring their length, perimeter, area, density, spatial distribution, frequency distribution (in any preselected direction), and so on. However, the Quantitative Image Analyzer is extremely sensitive to optical contrasts of various defects. Therefore, to obtain reproducible results, the contrasts produced by various defects must be similar and uniform for each defect types along the entire surface area of samples to be analyzed. To achieve this, a chemical cleaning and polishing technique has now been perfected for silicon samples from Mobil Tyco, Wacker, IBM, and Motorola. The cleaning and polishing preparation technique produces a very clean and even surface for silicon crystals suitable for analyses by the QTM 720 Image Analyzer. We are now obtaining quantitative information from a variety of silicon crystals. Quantitative data on 31 Mobil Tyco samples are given in this report.

The Quantimet 720 Image Analyzer is now being upgraded with the addition of a P.D.P. 11/03 minicomputer (with dual floppy discs), a DIGITAL Equipment Corporation LA-120 high speed printer and a Field-Image-Feature Interface module (F.I.F.I.).

These changes will greatly enhance the speed and reliability of the Quantimet 720 system at no additional cost to JPL.

SECTION III

CHEMICAL POLISHING AND ETCHING OF MOTOROLA SAMPLES

CHEMICAL POLISHING:

In our previous Quarterly Report¹ and One-Time Report² on Crystal Cleaning and Polishing techniques, we have discussed in detail the procedures of chemical polishing and chemical etching. These techniques were perfected for Wacker, IBM, and Mobil Tyco samples. However, as mentioned in our Quarterly Report¹, there is a variation in polishing time for the Wacker, Mobil Tyco, and IBM samples. This variation is due to certain inherent manufacturing, fabrication, and processing variables, which affect the chemical reaction rates for the three types of the samples under otherwise identical polishing conditions. Similarly, the polishing time of the silicon samples manufactured by Motorola has been observed to be different from those of IBM, Wacker, and Mobil Tyco samples.

The results of chemical polishing of Motorola samples are summarized in Table 1. It may be observed from the Table 1 that the polishing temperature of $50^{\circ} \pm 3^{\circ}\text{C}$ and polishing time of 35-45 seconds are acceptable for the Motorola samples. However, the Wacker samples require 80-85 seconds, the IBM samples require 30 seconds, and the Mobil Tyco samples require 45 seconds for polishing.

It may be noted that samples which are slightly underpolished as well as samples which are well-polished, exhibit bright and shiny surfaces when observed by the naked eye. Therefore, visual observation cannot be used to determine the quality of polishing. However, when the samples are observed in a high quality optical metallograph, the underpolished samples

show faceting and sub-grain type structure, whereas the well-polished samples show clearly defined grain boundaries and some of the twin boundaries in sharp contrast. Therefore, an optical metallograph must be used to determine the quality of polishing.

CHEMICAL ETCHING:

We have discussed in detail the composition and variation of the etching solution, the etching procedure, and the variation of the etching times in our previous reports^{1,2}. Etching solution III was used to distinctly reveal the structural defects such as grain boundaries, twin boundaries, and dislocation pits for IBM, Wacker, and Mobil Tyco samples. This etching solution contained 10 g C_rO_3 in 60 ml deionized water and 60 ml concentrated HF.

All the Mobil Tyco, IBM, and Motorola samples analyzed so far were etched for 50 seconds using etching solution III. The etching solution and etching time of 50 seconds were kept constant for all the samples. Since the samples were etched under identical conditions, the defects densities in these samples can be directly compared from one sample to another.

SECTION IV

TECHNICAL DISCUSSION

Chemical polishing and chemical etching of thirty one (31) Mobil Tyco samples and eight (8) Motorola samples were completed in the current reporting period. The 31 Mobil Tyco samples were then analyzed for twin boundaries, grain boundaries, and dislocation pits.

Procedure for QTM analysis, method of selecting fields, and explanation of teletype printouts are discussed below.

Measurement of Twins and Dislocation Pits:

In the Mobil Tyco samples, almost all the twins are oriented parallel to one another and run from one edge of the wafer to the opposite edge (parallel to the longitudinal axis of the silicon ribbon). Therefore, in order to measure twin density, 50 fields were chosen along the central transverse axis of the sample. In other words, the central transverse axis is perpendicular to the twins. The distance between each of these 50 fields where measurements for twins were made was 0.31 mm. The long dimension of each field is 0.30 mm. Therefore, each of these fields are adjacent to one another by a distance of 0.01 mm, and therefore, do not overlap one another. It is important that the fields do not overlap, since the same twin should not be counted twice. At the same time, the fields must be close to one another so that almost all the twins are counted by the QTM. On the other hand, counting may also be done using a square raster of 50 fields distributed evenly over the entire sample surface. In this case, the horizontal distance separating each field will

be 2.5 mm, which is much larger than the long dimension of the frame i.e., 0.30 mm. Therefore, under the method of square raster, there is a possibility that areas in the sample where the twin or dislocation density is very high may not be counted. This will result in large errors. Therefore, all the 50 fields were counted along the central transverse axis of the sample.

It has also been found that the dislocation pit density in the Mobil Tyco samples have longitudinal symmetry similar to the twins¹. Therefore, for the dislocation pit density measurements, all of the fifty fields were counted along the central transverse axis of the Mobil Tyco silicon samples.

Measurement of Average Area of Twins and Dislocation Pits:

Before measurements were made for twins, each sample was scanned to determine manually the average area of one twin. The method of determining the average twin area is as follows: First, the sample surface was randomly scanned, and those fields were selected where the twins were not touching each other. Each field, generally containing more than 5 distinct twins, were then displayed on the display module of the QTM. The total area of all the twins in each field was determined and divided by the number of twins in that field to get the average twin area for that field. The average twin area was then determined in an additional 4 fields. The arithmetic average was then calculated from the average twin area in these five fields. Generally, 30 to 40 twins are used in 5 fields to get the average twin area. The same procedure was used to obtain the average dislocation pit area. The average twin area in each sample was then fed into the Register (038) of the HP 9810. This is an important step to get actual number of twins and dislocation pits, especially in areas where the densities of

these defects are high and they touch one another. In order to verify that the average area of a twin so obtained was accurate, an additional six fields were selected at random where the twin density were high, and the twins were touching one another. The twin density in each of these six fields were counted manually, and also counted by the QTM using the average area of a twin. The entire procedure was repeated until close agreement was reached between manual counting and QTM counting. After this procedure, measurements were then made on all the 50 fields for each of the 31 Mobil Tyco samples using the automatic QTM mode.

Explanation of Teletype Printout :

The QTM measurements for twins and dislocation pits on Mobil Tyco samples 47 to 77 are shown in attached teletype printouts. The first paragraph of the teletype printout gives the date, name of the manufacturer, sample number, name of the defect type being measured, size of the X and Y steps, and average values of twin area and dislocation pit area that were measured manually and fed into the Register 038 for each sample. In addition, the teletype printout for twin measurements also shows that the QTM output data is divided by 100. This procedure was followed in order to avoid frequent overflow problems in the Classifier-Collector.

The second paragraph of the teletype printout lists: 1) the 800 X magnification that was used; 2) calibrated equivalent value of one picture point in the units being used i.e. mm for twins and microns for dislocation pits; and 3) calculated area of one field (frame) in the units being used. The frame area of a standard frame in the QTM is 500,000 pictures points (pp). In case of twins, the standard frame was used. However, during dislocation density measurements the uneven sample surfaces caused problems

in focusing dislocation pits over the entire standard frame. Therefore, during dislocation density measurements half the standard frame (250,000 pp) was used. This is shown under "Frame Area" in the QTM data sheets. The unit of measurement was millimeter for twins, and microns for dislocation pits.

The third paragraph of the teletype printout lists the titles for the different measurements, which are explained below:

Field: indicates the sequence number of the field in which measurements were made.

No: denotes the total number of features detected in any field. This is obtained by dividing the total area of a feature by the average area of that feature.

No./Area: denotes the computed number of features/mm² or features/microns² in each field.

MFPV: denotes the mean free path in the vertical direction. This quantity is the frame area divided by the vertical projection of all detected features in the field (frame).

MFPH: denotes mean free path in the horizontal direction. This is the horizontal analogue of MFPV.

L/A: This quantity is length of detected features per unit area. The unit area is mm² in the case of twins and microns² in the case of dislocation pits.

Note: The quantity L/A is subject to large errors when twin bands are present. The QTM computes L/A by dividing the perimeter by 2. A twin band usually contains 20 to 100 individual twins, many of them touching

one another. The QTM will compute L/A by dividing the perimeter of the twin band by 2. In other words, the QTM may count the entire twin band as one large area rather than consisting of several individual twins. Thus, L/A is subject to large errors and is underestimated by QTM.

AFETA: This denotes the average area of the features detected in each field. This is to be ignored in the attached teletype printouts, since the average area was determined manually at the start.

Note: The attached teletype printouts show, after 25 and 50 fields, the computed values of average, standard deviation, and standard error for all data from field No. 1 onwards. This averaging can be done at any time during the course of the measurement.

For all the samples (Mobil Tyco 47 to 77), the average twin area was divided by 100 before feeding into Register 038 of the HP 9810. Therefore, the QTM data for "No." and "No./Area" are actual. However, "MFPV" and "MFPH" are to be divided by 100 (because "area" is the numerator and "intercept distance" is the denominator); and "L/A" is to be multiplied by 100 to obtain actual values.

The grain boundaries in each sample were counted under the binocular microscope using 7X magnification. Most of the grain boundaries were parallel or approximately parallel to the twins. In general, there were no complete grains in a sample, i.e., the grain boundaries were running from bottom edge to top edge of a sample.

Upgrading of the Quantimet 720 Image Analyzer :

During the month of February, the Quantimet Image Analyzer system (QTM 720) was upgraded with the addition of a PDP 11/03 minicomputer, a Field-Image Interface Module (F.I.F.I.), and a DIGITAL Equipment LA-120 teletype. These modifications will result in a significantly improved image analysis system at no additional cost to JPL.

The PDP 11/03 minicomputer, that replaces a Hewlett-Packard Model 9810 desk top calculator, has a dual floppy disk drive and 64K bytes of memory. This new system allows software control of most Quantimet 720 data acquisition and analysis functions. These functions include the X, Y specimen stage motion (with automatic focusing), variable frame position, gray level detection, and feature measurements such as area, perimeter, vertical projection, and horizontal projection.

The link between the PDP 11/03 minicomputer and the Quantimet 720 Image Analyzer is the Field-Image-Feature Interface module³. This new module allows feature specific data acquisition, which was not possible on the earlier system. This module transfers data on image fields or on individual features to the computer core memory at very high speed. Geometric, densitometric, and co-ordinate data can be transferred from the Quantimet 720 to the PDP 11/03 minicomputer. Data for all the features in the field may be transferred, or data for only those features selected by the Quantimet size discrimination; or data selected by the image editor may be transferred to PDP 11/03. Pattern recognition can be performed by the PDP 11/03 using shape functions derived from feature measurements.

The results of this pattern recognition can be used to define automatically the region for full image transfer. Also, with this system a computer generated digitised image and a complete character format can be superimposed on the Quantimet 720 display screen³. Real time updated histograms, labels on features that satisfy preprogrammed pattern recognition tests, and numerical measurements on selected features can be displayed.

This system allows for very flexible data acquisition and analysis. Since the PDP 11/03 software controls many of the functions of the Quantimet 720, there is less chance for operator error. The time required to scan and analyze a field is now about 5 seconds as compared with about 10 seconds for the earlier system.

Data is recorded on floppy discs. Each disc can record the data from about 80 silicon samples (50 fields per sample). The data is output on a DIGITAL LA-120 Decwriter III printer which replaces a teletype. The LA-120 has a printing rate of 180 characters per second, which is a great improvement over the earlier teletype that had a printing rate of 10 characters a second. The addition of the LA-120 printer and floppy disc data storage system makes a significantly improved data storage and retrieval system.

The F.I.F.I. module allows for feature specific area scans. This additional capability will have to be investigated in order to determine if it can be advantageously applied to the analysis of defects in silicon samples.

This new equipment should become operational sometime in May, but additional time will be required for personnel to learn to operate the new system. Also, a new computer program must be written for the PDP 11/03 minicomputer that will co-ordinate the data acquisition and analysis functions of the Quantimet 720.

SECTION V

R E S U L T S

Sixty two (62) teletype printouts containing data on thirty one (31) Mobil Tyco samples are attached herein. For each sample, there are two teletype printouts, listing data separately for twins and dislocation pits. In addition to the teletype printouts; data on twins, dislocation pits, and grain boundaries have been summarized in Tables 2 to 5 for ease of correlation and comparison. Each table contains data from eight specimens cut from the same ribbon (see Fig. 1).

Grain boundary length/cm² have been measured and computed for each sample using a binocular microscope at a magnification of 7X.

There is no clear cut relationship present between twins, grain boundaries and dislocation pits among these samples whether cut from the same ribbon or when samples from different ribbons are compared.

Specimens from ribbon 5-640 MRR #1 contain lowest density of twins/mm² when compared with specimens cut from ribbons 5-640 MRR #2, 5-745, and 5-743. Similarly, specimens from ribbon 5-640 MRR #2 show lowest density of dislocation pits when compared to specimens from other ribbons. In general, the twin and dislocation densities in specimens taken from ribbons 5-640 MRR #1 and #2 are comparable. Similarly, the twin and dislocation densities in specimens from ribbon 5-745 and 5-743 are comparable. Specimens from these two ribbons on the whole exhibit higher densities of twins and dislocations when compared with specimens from ribbons 5-640 MRR #1 and #2.

Polishing time of the Motorola samples has been found to be 35-45 seconds using a temperature of $50^{\circ}\text{C} \pm 3^{\circ}\text{C}$. The etching solution and etching time of 50 seconds were kept constant for all of the samples. Since the samples were etched under identical conditions, the defect density in the samples can be directly compared.

SECTION VI

C O N C L U S I O N S

Polishing and etching procedures have been perfected for Mobil Tyco, Wacker, IBM, and Motorola silicon samples for obtaining proper contrast of structural defects suitable for QTM analyses.

A computer program for automated quantitative image analyses of grain boundaries, twin boundaries, and dislocation pits using a Quantimet 720 Image Analyzer has been perfected and is being used routinely.

Data collected on thirty one (31) Mobil Tyco samples using the Quantimet 720 Image Analyzer is discussed.

After the thirty one (31) Mobil Tyco samples were analyzed, the Quantimet 720 Image Analyzer system was upgraded with the addition of a PDP 11/03 minicomputer (with dual floppy disc drive), a Field-Image-Feature-Interface module, and a DIGITAL Equipment Corporation LA-120 high speed printer.

These changes will result in a much improved data storage and retrieval system, and should increase the speed and reliability of the Quantimet 720 system.

SECTION VII

REFERENCES

1. R. Natesh, J. M. Smith, H. A. Qidwai: "Quantitative Analysis of Defects in Silicon," Quarterly Progress Report No. 3, DOE/JPL 954977, Materials Research, Inc., Technical Report: MRI-264, 1979.
2. R. Natesh, H. A. Qidwai: "Quantitative Analysis of Defects in Silicon," One-Time Report on Crystal Etching Preparation Technique, DOE/JPL 954977, Materials Research Inc., Technical Report: MRI-259, 1978.
3. Quantimet 720 Image Analysing Computer Operating Manual, 2nd Edition, Cambridge Instrument Company, Inc., November, 1971.

Fig. 1. Schematic sketch showing location of 32 Mobil Tyco samples from four ribbons. In each square (representing a sample), the number at top represents average twin density/mm² and the number at bottom represents dislocation density/microns². 24

T A B L E 1

CHEMICAL POLISHING OF MOTOROLA SAMPLES

Polishing solution: mixture of HNO_3 : HF : CH_3COOH = 1:2:3 by volume

Temperature ($^{\circ}\text{C}$)	Time (Sec.)	Surface Condition
50	30	Growth lines persist. Sub-grain type structures present
50	35-45	Good even polishing
50	50	Faceting develops

T A B L E 2

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm ²	Grain boundary length/cm ²	No. of Dislocation Pits/field	No. of Dislocation Pits/ μm^2
47	5-745 A	21.78	309.738	0.72	1949.83	0.055
48	5-745 B	53.10	755.151	1.93	1166.29	0.033
49	5-745 C	30.53	434.213	1.82	2428.95	0.069
50	5-745 D	60.51	860.580	3.44	1122.38	0.032
51	5-745 E	32.26	501.439	3.31	2583.40	0.073
52	5-745 F	43.63	620.473	2.30	1493.01	0.042
53	5-745 G	48.25	686.249	2.00	1556.36	0.044
54	5-745 H	59.19	841.787	1.84	1434.39	0.042

TABLE 3

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm ²	Grain boundary length/cm ²	No. of Dislocation Pits/field	No. of Dislocation Pits/ μ m ²
55	5-743 A	55.18	784.721	2.27	1423.18	0.040
56	5-743 B	59.27	843.002	0.94	1465.18	0.042
57	5-743 C	40.06	569.736	1.96	1376.75	0.039
58	5-743 D	61.62	831.500	2.00	1189.66	0.034
59	5-743 E	56.23	799.764	2.04	1532.03	0.044
60	5-743 F	43.17	613.955	2.72	1885.17	0.054
61	5-743 G	59.86	851.352	2.48	1458.14	0.041
62	5-743 H	43.67	621.122	1.76	2190.90	0.062

T A B L E 4

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm ²	Grain boundary length/cm ²	No. of Dislocation Pits/field	No. of Dislocation Pits/μm ²
	(MRR #1)					
63	5-640 B	28.22	401.415	1.60	860.36	0.024
64	5-640 C	24.98	355.260	1.40	1136.35	0.032
65	5-640 D	24.57	349.427	2.52	1072.13	0.030
66	5-640 E	23.74	337.584	2.39	2427.54	0.069
67	5-640 F	48.55	690.422	2.19	860.34	0.025
68	5-640 G	18.67	265.506	1.08	1434.89	0.041
69	5-640 H	45.92	653.085	0.59	1245.87	0.035

T A B L E 5

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm ²	Grain boundary length/cm ²	No. of Dislocation Pits/field	No. of Dislocation Pits/μm ²
	(MRR #2)					
70	5-640 A	20.21	287.431	1.92	976.88	0.02 8
71	5-640 B	39.75	565.332	2.76	576.89	0. 016
72	5-640 C	24.08	342.460	2.60	685.26	0.01 9
73	5-640 D	22.14	314.947	2.19	850.34	0.0 24
74	5-640 E	50.11	712.701	2.00	621.43	0. 018
75	5-640 F	30.21	429.695	1.55	842.35	0 .024
76	5-640 G	42.22	600.411	1.82	998.84	0. 028
77	5-640 H	35.90	510.569	2.35	650.94	0.0 19

DATE 1/13/79
 MOBIL TYCO SAMPLE # 47 JPL # 145-7 E 5-745 SPEC A
 TWINS ONLY
 JTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 34.15X100

MAG-800.3 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PO
 FRAME AREA- 0.370313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	7.99	113.611	13.417	3.538	1.000005
2	6.87	97.739	13.493	5.357	1.000005
3	52.13	740.976	5.315	1.875	0.000008
4	31.22	444.001	3.976	1.563	0.000011
5	17.27	245.630	8.152	3.178	1.000012
6	26.75	383.512	3.827	1.476	0.000011
7	3.41	46.452	26.786	2.523	0.000008
8	13.31	142.431	6.944	2.933	0.000008
9	29.48	419.357	6.148	1.894	0.000013
10	54.45	774.391	3.989	1.251	0.000014
11	55.12	783.997	3.538	1.116	0.000015
12	42.20	677.215	4.551	1.269	0.000014
13	19.53	277.761	6.348	2.155	0.000008
14	24.76	352.113	5.068	1.752	0.000009
15	91.13	1281.883	3.906	1.139	0.000009
16	47.52	675.817	4.934	1.913	0.000018
17	36.83	523.779	3.472	1.735	0.000012
18	15.95	226.834	7.212	2.259	0.000006
19	11.17	157.885	8.152	2.841	0.000005
20	27.41	293.292	5.208	1.616	0.000006
21	59.33	843.339	2.757	1.133	0.000012
22	37.95	443.241	3.989	1.384	0.000006
23	3.35	47.616	15.625	6.250	0.000003
24	4.73	67.248	12.500	6.048	0.000005
25	4.35	57.641	13.393	6.250	0.000004

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
28.22	431.347	7.562	2.522	0.535	0.000011
SD 21.65	377.962	5.223	2.108	0.268	0.000017
SE 4.33	61.592	1.056	0.402	0.354	0.000001

26	2.64	37.592	18.750	10.417	0.000004
27	1.29	18.378	62.500	62.500	0.000006

LAST FIELD DELETED

27	5.46	77.690	11.719	5.068	0.000004
28	4.76	57.665	11.719	8.929	0.000005
29	2.64	37.592	18.750	12.500	0.000004
30	2.85	40.516	17.045	8.523	0.000003
31	21.32	333.240	13.417	4.573	0.000017
32	2.82	43.398	23.438	10.417	0.000005
33	42.03	597.739	4.261	1.349	0.000011
34	7.84	111.322	6.348	3.538	0.000003
35	9.34	132.824	11.719	5.068	0.000007
36	25.23	358.793	4.360	1.253	0.000006
37	81.77	1162.104	2.841	0.741	0.000016
38	43.33	611.493	3.472	0.982	0.000013
39	1.76	25.061	37.500	13.393	0.000004
40	5.02	71.424	14.423	3.827	0.000005
41	3.67	52.211	17.045	8.152	0.000004
42	1.12	15.872	37.500	14.423	0.000003
43	17.18	244.347	11.719	2.885	0.000013
44	29.66	421.863	5.357	1.752	0.000010
45	15.74	223.880	11.029	3.348	0.000009
46	6.55	93.144	13.393	6.466	0.000006
47	2.00	28.433	23.438	18.750	0.000005
48	9.63	136.583	7.212	2.435	0.000006
49	7.28	133.586	26.786	9.868	0.000005
50	13.91	154.962	8.152	4.167	0.000006
51	9.34	132.824	7.813	3.976	0.000006
52	9.96	141.596	7.212	3.233	0.000005
53	42.47	633.975	2.679	0.713	0.000007
54	46.67	663.734	6.466	1.769	0.000005

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
21.78	339.735	13.587	4.493	0.449	0.000009
SD 23.89	297.166	8.125	3.956	0.333	0.000007
SE 2.84	43.439	1.136	0.542	0.345	0.000001

DATE 1/13/79

MO31L TYCO SAMPLE # 47 JPL 3) # 145-7E 5-745 SPEC A

DISLOCATION PITS ONLY

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE DISLOCATION PIT AREA = 5.18 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR-

0.375000 UNITS/PP

FRAME AREA- 3.51562500 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	535.14	0.015	87.372	84.378	0.016	1.779966
2	1133.98	0.032	47.235	46.137	0.031	2.275568
3	1292.66	0.037	48.930	41.909	0.034	3.027733
4	739.58	0.021	65.149	65.836	0.022	2.010203
5	6305.98	0.179	10.793	10.575	0.136	4.329421
6	1664.09	0.047	35.218	33.906	0.042	2.805990
7	4667.95	0.133	15.214	15.241	0.096	4.364971
8	3433.98	0.098	20.288	18.416	0.075	4.169063
9	899.03	0.026	54.474	54.601	0.026	1.954897
10	546.91	0.016	117.776	105.337	0.013	2.710140
11	419.50	0.012	142.261	115.314	0.010	2.752956
12	612.74	0.017	98.892	90.667	0.017	2.128170
13	331.85	0.009	136.067	133.028	0.011	1.539709
14	839.77	0.024	53.295	50.027	0.028	1.517913
15	421.04	0.012	195.313	137.868	0.010	5.476842
16	718.92	0.020	100.375	94.127	0.017	3.514681
17	871.43	0.025	73.529	59.111	0.021	3.487809
18	191.12	0.005	217.014	224.820	0.006	1.529876
19	3231.47	0.092	20.559	19.071	0.073	3.802782
20	218.15	0.006	212.134	211.625	0.007	1.826509
21	14.48	0.000	2038.743	3024.194	0.001	1.506696
22	107.92	0.003	351.969	339.674	0.005	1.429261
23	1650.19	0.047	29.178	29.016	0.050	1.983601
24	1563.32	0.044	28.661	28.971	0.049	1.722816
25	2010.42	0.057	23.275	23.461	0.062	1.921875

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1376.86	0.039	169.198	202.175	0.034	2.665178
SD	1499.17	0.043	390.061	581.058	0.032	1.098579
SE	299.83	0.019	78.012	116.212	0.006	0.219716

26	1108.30	0.032	39.574	41.245	0.036	1.611433
27	3781.27	0.108	16.708	17.252	0.084	3.609989
28	3110.23	0.088	19.039	18.046	0.078	2.817922
29	6515.83	0.185	11.149	11.068	0.132	4.612609
30	1634.17	0.046	24.212	24.684	0.057	1.480585
31	817.37	0.023	48.475	51.174	0.028	1.344732
32	1168.51	0.003	35.139	36.211	0.040	1.490724
33	3151.93	0.090	15.279	15.914	0.091	2.062879
34	106.18	0.003	327.797	339.674	0.004	1.227679
35	3388.03	0.096	16.468	16.161	0.090	2.536453
36	3352.91	0.095	17.823	17.432	0.082	3.100399
37	304.05	0.009	128.374	124.337	0.010	1.216947
38	3.67	0.000	7812.500	5859.175	0.000	0.890625
39	145.56	0.004	279.851	258.978	0.005	1.247426
40	3831.66	0.109	12.940	12.667	0.115	1.962816
41	3723.36	0.106	13.974	14.576	0.101	2.425970
42	2415.25	0.069	24.414	25.594	0.059	2.856103
43	2616.41	0.074	20.546	20.604	0.071	2.327095
44	863.90	0.025	62.210	65.651	0.020	2.280061
45	59.07	0.002	529.661	541.908	0.002	2.151563
46	227.80	0.006	302.419	213.068	0.006	2.212500
47	1969.50	0.056	25.650	27.388	0.055	2.220830
48	3289.38	0.094	14.974	15.612	0.094	2.141295
49	12966.80	0.369	8.614	8.809	0.154	16.146154
50	2518.92	0.072	18.411	18.071	0.079	1.889676

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1949.83	0.055	281.117	256.993	0.047	2.689924
SD	2235.34	0.064	1115.269	906.000	0.040	2.165490
SE	316.12	0.009	157.723	128.132	0.006	0.306275

DATE 1/13/79
 MOBIL TYCO SAMPLE # 48 UPL # 145-7E 5-745 SPEC 1
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA 33.52X100

MAG-800.0 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	50.18	713.657	4.934	1.915	1.176	1.000013
2	123.27	1753.169	7.500	1.369	0.795	1.000042
3	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
4	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	43.36	616.706	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.493	\$\$\$\$\$\$\$\$\$
SD	50.48	717.914	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.511	\$\$\$\$\$\$\$\$\$
SE	25.24	358.957	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.255	\$\$\$\$\$\$\$\$\$
5	16.77	238.451	6.048	1.606	1.349	0.000013
6	18.38	261.363	6.696	2.937	1.435	1.000012
7	65.27	928.348	4.934	1.217	0.919	1.000024
8	18.82	267.727	11.719	1.178	1.349	1.000011
9	29.81	423.866	5.068	1.389	0.871	0.000000
10	23.51	334.341	11.719	1.41	1.416	1.000011
11	3.49	49.642	31.250	9.375	1.128	1.000014
12	58.59	833.307	5.238	1.225	1.919	1.000023
13	62.62	893.586	3.125	1.762	1.467	1.000012
14	102.18	1453.195	4.376	1.218	1.939	1.000014
15	81.24	1155.343	3.327	1.325	1.364	1.000023
16	29.65	421.745	4.573	1.349	1.851	1.000011
17	49.82	738.565	2.937	1.065	1.107	1.000023
18	36.37	517.213	3.006	1.488	0.795	1.000013
19	48.03	683.108	6.048	1.038	1.364	1.000019
20	74.58	1063.727	4.464	1.165	1.952	0.000018
21	61.31	871.917	3.750	0.856	1.275	1.000017
22	19.45	276.637	5.859	2.435	1.485	1.000011
23	43.44	617.767	4.688	1.953	1.629	1.000026
24	81.53	1159.586	2.500	0.997	1.195	1.000038
25	65.81	935.985	4.464	1.073	1.388	1.000016
26	67.24	956.351	2.937	1.893	1.272	1.000024
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	47.36	673.561	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.786	\$\$\$\$\$\$\$\$\$
SD	30.73	437.069	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.398	\$\$\$\$\$\$\$\$\$
SE	6.00	85.716	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.078	\$\$\$\$\$\$\$\$\$
27	33.35	474.357	3.906	1.616	1.749	0.000031
28	7.7.36	1193.186	6.250	1.150	1.933	1.000017
29	26.61	378.467	6.944	1.550	1.712	1.000007
30	15.13	215.115	12.500	2.155	1.496	1.000005
31	9.93	141.289	9.868	3.989	1.304	1.000016
32	56.71	806.577	6.048	1.752	1.645	1.000024
33	67.36	958.048	6.466	1.172	0.933	1.000018
34	63.39	901.618	8.152	1.258	0.845	0.000014
35	59.04	839.671	5.859	1.218	1.888	1.000013
36	48.36	687.775	3.916	1.276	0.885	1.000013
37	73.93	1051.392	3.348	1.962	1.163	1.000020
38	72.55	1031.875	5.859	2.038	0.565	0.000029
39	54.21	773.936	5.238	1.674	0.667	0.000017
40	72.43	1030.178	5.515	2.373	0.504	1.000049
41	73.75	1048.846	5.859	2.344	0.515	0.000050
42	58.56	832.883	5.357	2.060	0.571	1.000035
43	18.32	260.514	9.868	2.930	0.392	0.000012
44	16.89	243.149	7.500	1.786	0.589	1.000003
45	11.25	159.958	7.500	2.799	0.411	0.000004
46	68.53	974.596	1.838	0.651	1.875	1.000041
47	67.60	961.443	7.500	1.472	0.360	1.000081
48	67.84	964.837	3.472	1.139	1.329	0.000021
49	54.47	774.755	4.808	1.820	1.632	0.000018
50	73.12	1039.936	4.808	2.115	1.528	1.000043
51	116.20	1652.612	5.768	1.410	1.797	1.000068
52	95.70	1361.124	2.757	1.218	0.984	1.000050
53	97.08	1380.642	2.930	1.194	1.987	1.000035
54	86.19	1225.776	5.859	1.524	0.725	0.000025
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	53.17	755.151	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.760	\$\$\$\$\$\$\$\$\$
SD	29.37	417.737	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.352	\$\$\$\$\$\$\$\$\$
SE	4.00	56.847	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.048	\$\$\$\$\$\$\$\$\$

DATE 1/7 1/13/79
 MOBIL TYCO SAMPLW # 48 JPL 3 145-7E 5-745 SPEC 3
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE DISLOCATION PIT AREA = 5.29 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 0.375000 UNITS/PP
 FRAME AREA- 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1 1884.88	0.054	42.633	38.788	0.039	4.099918
2 0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
3 186.48	0.004	448.565	426.136	0.003	2.307528
4 289.15	0.008	201.613	182.749	0.009	1.751313
5 3129.68	0.086	24.697	25.819	0.064	3.852644
6 2306.99	0.066	32.228	32.261	0.051	3.446160
7 172.97	0.005	356.464	237.944	0.005	3.138338
8 2209.83	0.063	32.150	30.458	0.053	2.919905
9 626.84	0.018	86.485	79.719	0.020	1.619141
10 769.94	0.022	72.900	65.882	0.025	1.577867
11 6860.68	0.195	11.365	11.313	0.146	4.384625
12 440.64	0.013	234.375	113.774	0.009	5.200125
13 278.45	0.008	218.023	196.541	0.009	2.135470
14 202.84	0.006	334.821	264.831	0.006	2.218980
15 71.08	0.002	808.190	787.815	0.002	2.003654
16 1127.22	0.032	68.631	65.635	0.022	2.465073
17 1954.06	0.056	36.127	34.029	0.047	2.092852
18 1164.46	0.033	71.347	53.510	0.026	3.686170
19 512.48	0.015	173.299	84.918	0.017	2.978394
20 91.30	0.003	637.755	558.036	0.003	1.741587
21 1567.49	0.045	78.760	39.911	0.032	5.859611
22 4717.39	0.134	16.895	15.780	0.097	4.464754
23 2107.18	0.060	41.372	46.945	0.032	4.883324
24 474.29	0.013	148.810	97.656	0.009	2.556726
25 425.14	0.012	124.337	108.131	0.014	1.557959

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1336.50	0.038	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.030	\$\$\$\$\$\$\$\$\$
SE	1588.13	0.045	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.033	\$\$\$\$\$\$\$\$\$
SE	317.63	0.009	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.007	\$\$\$\$\$\$\$\$\$

26 700.19	0.020	57.269	46.619	0.030	2.117378
27 7201.13	0.205	12.811	11.604	0.135	6.461965
28 5.10	0.000	8522.727	9375.000	0.000	1.265625
29 29.87	0.001	3180.233	689.338	0.002	1.481250
30 65.78	0.002	946.970	669.643	0.002	2.330357
31 2921.93	0.083	24.574	22.085	0.070	2.905937
32 491.12	0.014	129.132	124.502	0.012	2.628372
33 134.59	0.004	426.136	373.506	0.005	1.589286
34 9.07	0.000	9375.000	5859.375	0.000	3.375000
35 149.53	0.004	475.888	600.962	0.004	2.927220
36 96.03	0.003	1284.247	1102.941	0.001	4.202206
37 31.95	0.001	4687.500	3472.222	0.002	3.960908
38 170.89	0.005	330.106	290.248	0.005	2.270089
39 896.79	0.026	76.781	70.436	0.023	2.647321
40 254.44	0.007	246.711	232.630	0.007	2.126756
41 784.31	0.022	101.351	90.144	0.017	3.960069
42 328.36	0.009	192.111	166.815	0.009	2.598570
43 2201.32	0.063	32.139	30.389	0.053	2.055183
44 2155.95	0.061	36.736	23.211	0.057	2.612226
45 1568.05	0.045	46.391	31.823	0.044	2.923520
46 2055.95	0.058	41.239	27.811	0.048	2.748621
47 423.63	0.012	172.335	169.224	0.012	2.251004
48 581.47	0.017	131.119	117.925	0.013	3.379395
49 1153.66	0.033	91.019	52.170	0.026	5.903341
50 493.76	0.014	136.067	119.123	0.012	3.531851

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1166.29	0.033	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.027	\$\$\$\$\$\$\$\$\$
SE	1554.13	0.044	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.032	\$\$\$\$\$\$\$\$\$
SE	219.79	0.006	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.004	\$\$\$\$\$\$\$\$\$

DATE 1/13/79
 MOBIL TYCO SAMPLE # 49 JPL # 145-7E 5-745 SPEC 7
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 31.40X100

MAG-800.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	44.59	634.112	3.936	1.042	1.367	1.000012
2	90.00	1280.000	4.167	1.157	0.973	0.000031
3	58.38	830.234	3.750	0.756	1.416	0.000038
4	12.52	178.004	10.417	2.841	0.424	0.000006
5	12.87	182.987	8.152	2.930	0.392	0.000008
6	22.68	322.491	8.523	2.038	0.531	0.000009
7	8.28	117.764	23.438	9.868	0.120	0.000012
8	3.63	51.635	23.438	9.375	0.125	0.000005
9	24.08	342.420	8.929	1.995	0.549	0.000008
10	109.84	1562.180	6.696	1.242	0.899	0.000037
11	73.15	1040.396	7.500	1.476	0.736	0.000018
12	80.73	1148.195	7.500	1.399	0.781	0.000030
13	55.51	789.469	6.696	1.194	0.883	0.000012
14	37.26	529.936	6.944	1.379	0.792	0.000011
15	84.04	1195.301	4.167	1.008	1.393	0.000037
16	11.46	163.057	6.696	0.074	0.381	0.000006
17	33.12	471.054	10.417	1.933	0.560	0.000010
18	6.97	99.193	31.250	9.868	0.117	0.000010
19	0.06	43.482	23.438	15.625	0.096	0.000003
20	30.76	437.537	7.813	2.534	0.440	0.000014
21	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
22	8.28	117.764	9.375	5.515	0.256	0.000005
23	14.46	205.693	6.696	2.373	0.488	0.000005
24	19.84	282.180	6.944	2.016	0.531	0.000006
25	11.91	169.398	13.393	4.934	0.245	0.000011
26	15.73	223.751	14.423	4.934	0.229	0.000010
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	33.58	477.622	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.543	\$\$\$\$\$\$\$\$\$
SE	30.65	435.967	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.356	\$\$\$\$\$\$\$\$\$
SE	6.31	85.500	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.070	\$\$\$\$\$\$\$\$\$
27	24.11	342.873	8.929	2.232	0.491	0.000010
28	9.97	141.769	17.045	5.208	0.219	0.000009
29	29.68	422.137	10.417	2.534	0.437	0.000012
30	7.58	107.799	17.045	6.048	0.197	0.000007
31	7.52	106.893	23.438	6.048	0.181	0.000007
32	48.28	686.653	6.466	1.234	0.880	0.000011
33	53.76	764.558	6.048	1.003	1.059	0.000010
34	68.06	947.926	5.515	1.096	0.987	0.000016
35	45.99	654.041	6.250	1.136	0.944	0.000017
36	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
37	5.03	71.564	12.500	9.375	0.141	0.000007
38	3.50	49.823	26.786	15.625	0.077	0.000005
39	47.01	668.535	6.250	1.157	0.925	0.000010
40	54.90	780.863	3.989	1.884	1.221	0.000013
41	96.75	1376.023	3.024	1.125	1.139	0.000047
42	17.52	249.115	5.682	3.409	0.395	0.000026
43	28.25	401.755	6.250	2.287	0.523	0.000018
44	35.73	508.195	11.719	4.464	0.272	0.000053
45	5.35	76.093	18.750	12.500	0.112	0.000024
46	1.88	26.723	62.500	26.786	0.048	0.000008
47	20.89	297.127	14.423	2.568	0.419	0.000012
48	21.56	306.638	8.152	1.974	0.555	0.000008
49	8.44	120.028	5.682	4.167	0.336	0.000009
50	11.62	165.322	7.212	3.289	0.363	0.000006
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	37.53	434.213	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.521	\$\$\$\$\$\$\$\$\$
SD	27.91	396.876	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.364	\$\$\$\$\$\$\$\$\$
SE	3.95	56.127	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.052	\$\$\$\$\$\$\$\$\$

DATE 1/13/79
 MOBIL TYCO SAMPLE # 49 JPL # 145-7E 5-745 SPEC 8
 DISLOCATION PITS ONLY
 .4 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.10PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.515625001 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1 774.12	0.022	76.406	63.862	0.024	2.018864
2 411.96	0.012	164.763	107.388	0.013	2.569158
3 4529.41	0.129	17.416	16.729	0.096	3.597324
4 5287.00	0.150	15.143	14.834	0.117	4.226283
5 2543.73	0.072	26.027	26.709	0.062	2.565862
6 2832.75	0.081	23.309	23.532	0.072	2.673179
7 3334.12	0.095	21.723	20.395	0.080	3.733656
8 1903.73	0.054	34.028	32.895	0.049	2.566436
9 11.76	0.000	4464.286	2678.571	0.001	1.754688
10 245.49	0.007	271.739	221.631	0.007	3.827446
11 46.06	0.001	1077.586	966.495	0.002	1.158944
12 78.43	0.002	860.092	637.755	0.002	2.444552
13 1203.98	0.034	51.968	47.954	0.033	2.121498
14 241.57	0.007	225.974	199.893	0.007	1.665865
15 5199.02	0.148	15.269	14.148	0.112	3.979372
16 2012.16	0.057	33.145	34.228	0.049	2.817575
17 2702.55	0.077	26.717	26.687	0.064	3.714361
18 2826.08	0.080	24.206	23.549	0.068	2.543072
19 805.69	0.023	101.681	114.890	0.020	4.069212
20 5411.96	0.154	13.775	13.870	0.117	3.644498
21 12846.27	0.365	7.592	7.661	0.261	9.391628
22 1729.80	0.049	35.205	26.634	0.054	2.180305
23 2645.29	0.075	30.458	27.549	0.056	3.655437
24 1816.47	0.052	29.023	33.350	0.056	1.863734
25 1992.94	0.057	27.802	29.160	0.060	1.923775
26 444.90	0.013	116.315	116.315	0.014	1.405631

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	2456.46	0.070	299.676	312.454	0.057	2.923093
SD	2644.82	0.075	870.242	536.354	0.054	1.566764
SE	518.69	0.015	170.668	145.227	0.011	3.337130

27 3736.47	0.106	19.270	19.708	0.084	3.568242
28 1496.67	0.043	52.112	55.777	0.030	4.666916
29 3954.90	0.112	18.594	19.438	0.087	3.776839
30 4251.18	0.121	17.326	17.810	0.093	3.633958
31 78.04	0.002	744.048	493.421	0.002	1.875444
32 363.33	0.010	188.632	139.753	0.010	2.458284
33 54.90	0.002	1041.667	684.307	0.002	1.789773
34 912.55	0.026	73.071	68.481	0.024	2.796875
35 3720.20	0.106	19.671	21.497	0.083	4.149422
36 4800.59	0.137	19.812	18.716	0.085	5.232404

LAST FIELD DELETED

36 6448.43	0.183	12.083	12.225	0.134	4.772688
37 722.55	0.021	170.145	101.681	0.013	5.572077
38 263.33	0.007	193.549	139.717	0.010	1.475464
39 245.49	0.007	226.449	203.834	0.008	1.544408
40 4236.47	0.121	15.097	15.780	0.106	2.828998
41 1542.16	0.044	43.409	29.990	0.049	2.590201
42 477.06	0.014	120.347	116.315	0.014	2.250925
43 7197.45	0.205	11.597	12.197	0.139	5.479747
44 5571.76	0.158	13.288	14.704	0.118	4.494938
45 595.49	0.017	89.542	77.163	0.023	2.483012
46 472.94	0.013	109.139	103.022	0.017	1.304567
47 4636.47	0.132	15.007	14.392	0.113	2.341928
48 2887.84	0.082	23.333	22.418	0.072	2.569634
49 1994.90	0.057	35.364	33.650	0.048	2.799841
50 1719.02	0.049	36.436	36.037	0.046	3.193936

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	2428.95	0.069	221.495	159.750	0.056	3.026977
SD	2414.47	0.069	654.410	405.684	0.049	1.439986
SE	341.46	0.010	92.548	57.372	0.007	0.199402

DATE 1/15/79
MOBIL-TYCO SAMPLE # 53 JPL # 145-75 5-745 SPEC 1
TWIN'S ONLY
DTM OUTPUT DATA DIVIDED BY 100
.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN AREA = 29.43X100

MAG-800.0 UNITS-MM CAL. FACTOR-
FRAME AREA- 0.070313

0.000375 UNITS/PP

	FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1	140.31	1995.465	5.357	1.389	0.838	1.111136
	2	124.46	1770.038	4.848	1.813	0.653	1.011137
	3	66.09	939.924	3.676	1.157	1.981	1.000030
	4	96.94	1378.685	3.439	1.347	1.380	1.000027
	5	73.61	1046.833	6.048	1.803	1.600	1.000018
	6	5.58	79.335	20.833	9.868	1.120	0.000003
	7	34.08	484.717	7.212	2.757	1.419	1.000047
	8	94.12	1338.534	4.360	1.339	0.843	1.000056
	9	83.23	1183.734	3.074	1.772	1.419	1.000025
	10	127.28	1810.189	4.688	1.720	1.688	1.000021
	11	21.80	310.083	7.813	3.750	1.317	1.000013
	12	46.15	654.996	6.250	2.641	0.456	1.000027
	13	35.31	502.132	6.048	2.206	1.525	1.000021
	14	49.39	732.404	3.750	1.130	0.987	1.000023
	15	82.07	1167.286	2.885	1.065	1.099	1.000019
	16	84.22	1197.763	3.538	1.410	0.835	1.000035
	17	79.46	1130.038	4.573	1.769	0.661	1.000033
				AVERAGE			
		NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
		73.18	1043.715	5.784	2.213	5.737	1.000026
SD		36.73	522.342	4.013	2.049	2.879	1.000013
SE		8.91	126.687	1.973	1.497	1.698	1.000033
	18	53.23	757.167	3.125	1.633	1.752	1.000024
	19	28.88	410.703	8.929	4.808	1.267	1.000060
	20	20.54	292.184	5.357	2.315	1.517	1.000012
	21	22.86	325.079	4.808	1.576	1.715	1.000038
	22	63.74	906.546	2.344	1.314	1.200	1.000033
	23	78.67	1118.912	1.720	0.872	1.155	1.000036
	24	18.33	263.741	5.515	2.604	1.416	1.000038
	25	8.81	125.291	11.029	3.125	1.363	1.000025
	26	6.16	87.559	8.929	5.208	1.227	0.000035
	27	25.10	357.007	5.357	3.472	1.384	1.000021
				AVERAGE			
		NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
		58.16	827.157	5.757	2.379	3.834	1.000024
SD		37.80	537.592	3.641	1.855	3.379	1.000015
SE		7.27	103.460	0.701	0.357	0.650	1.000003
	28	66.29	942.827	3.606	1.084	0.989	0.000016
	29	71.67	1019.259	3.750	1.194	1.917	1.000033
	30	109.49	1557.188	7.212	2.717	0.435	1.0000151
	31	70.44	1001.844	3.676	1.442	0.813	1.000024
	32	85.24	1212.275	3.409	1.036	1.399	1.000032
	33	3.13	44.505	31.250	17.145	0.077	0.000006
	34	10.85	154.316	20.833	6.048	0.187	0.000009
	35	71.60	1018.292	4.808	1.576	0.739	0.000033
	36	64.69	920.091	3.178	0.893	1.243	0.000013
	37	65.85	936.538	3.676	0.966	1.131	0.000011
	38	55.68	791.897	4.808	1.720	0.667	1.000014
	39	65.54	932.184	5.682	2.232	0.536	1.000030
	40	23.50	334.271	6.944	3.750	0.325	0.100012
	41	55.75	792.865	4.934	2.679	0.461	1.000029
	42	6.16	87.559	20.833	6.944	1.163	1.000035
	43	5.44	77.403	17.145	6.466	0.184	1.000003
	44	36.90	524.868	3.348	1.645	0.731	1.000011
	45	103.06	1465.761	3.750	1.953	1.643	0.000061
	46	116.84	1661.678	3.606	1.330	1.267	1.000037
	47	116.16	1652.003	3.906	2.083	0.595	1.000069
	48	92.93	1321.602	4.360	1.339	0.835	0.000026
	49	70.92	1008.617	3.439	1.187	0.960	1.000018
	50	93.91	1335.631	4.934	1.856	1.621	0.000032
	51	53.64	762.872	3.989	1.225	1.909	0.000012
				AVERAGE			
		NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
		67.51	863.581	6.517	2.640	2.346	0.000026
SD		36.06	512.821	5.645	2.711	2.930	1.000023
SE		5.05	71.809	0.790	1.300	1.410	0.000003

DATE 1/15/79
 MOBIL TYCO SAMPLE # 57 JPL # 145 7E 5-745 SPEC. 0
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE DISLOCATION PIT AREA = 5.4 μ^2

MAG-800.3 UNITS-MICRONS CAL. FACTOR- 0.375000 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	2.96	3.333	15625.000	13392.857	3.333	1.125000
2	13.15	3.333	2433.846	2343.750	3.333	1.665625
3	929.26	3.326	58.521	49.293	3.329	2.613542
4	31.48	3.331	1284.247	1512.397	3.331	1.138393
5	53.70	3.332	1019.322	892.857	3.332	1.941964
6	3336.11	3.395	21.398	21.365	3.379	3.243738
7	695.13	3.323	79.991	84.612	3.319	2.314762
8	139.07	3.334	366.211	352.444	3.335	1.518735
9	86.85	3.332	787.815	618.766	3.332	2.274246
10	45.93	3.331	774.793	822.368	3.332	1.380044
11	9115.33	3.259	15.817	16.316	3.135	18.215138
12	3345.74	3.395	22.629	23.344	3.372	2.969833
13	1993.56	3.357	33.445	29.379	3.351	3.337611
14	334.26	3.339	154.733	124.172	3.313	1.553653
15	877.22	3.325	69.733	58.339	3.326	2.373637
16	559.81	3.316	113.774	136.861	3.318	1.953143
17	282.41	3.338	233.911	183.894	3.337	1.848734
18	1518.33	3.343	47.182	49.577	3.334	4.273313
19	3364.63	3.387	28.548	24.452	3.367	4.572138
20	1877.34	3.353	35.525	27.395	3.354	2.313478
21	2137.22	3.363	31.365	25.926	3.356	2.693355
22	1394.37	3.331	58.741	52.936	3.328	2.816314
23	769.26	3.322	68.331	67.592	3.324	2.335388
24	1286.48	3.337	46.411	43.433	3.338	2.266643
25	1743.19	3.349	33.784	34.492	3.349	2.258894

AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1413.63	3.343	936.429	839.799	3.331	3.331673
SE	1883.32	3.353	3347.381	2623.017	3.328	3.251633
SE	376.36	3.311	639.476	524.003	3.336	1.653323

26	2826.85	3.383	25.462	27.531	3.364	2.423669
27	2312.41	3.357	35.968	29.593	3.353	2.578857
28	253.33	3.337	216.314	218.531	3.337	3.263593
29	364.44	3.313	174.581	127.378	3.313	2.493243
30	257.59	3.337	235.142	212.134	3.338	1.746512
31	275.93	3.338	168.311	168.311	3.313	1.854259
32	3471.48	3.399	27.372	35.524	3.364	4.173668
33	2955.56	3.384	21.812	22.645	3.369	2.224677
34	1281.85	3.336	53.512	49.525	3.332	2.943834
35	266.67	3.338	199.468	189.312	3.338	1.716132
36	146.85	3.334	382.653	229.218	3.335	1.773189
37	167.59	3.305	298.567	236.498	3.306	1.339638
38	571.11	3.316	119.123	113.774	3.312	2.953255
39	397.34	3.311	142.912	132.415	3.312	2.351323
40	933.56	3.326	65.314	65.243	3.324	2.793346
41	432.96	3.311	135.673	143.766	3.312	2.253333
42	959.37	3.327	53.913	52.345	3.331	1.862652
43	1154.81	3.333	53.197	49.368	3.333	2.113132
44	1472.96	3.342	53.896	26.916	3.345	3.495413
45	62.22	3.332	674.463	496.332	3.332	1.945333
46	3.33	3.333	555555555	555555555	3.333	555555555555
47	14.26	3.333	3125.333	1953.125	3.333	3.832933
48	14.81	3.333	1768.868	368.356	3.331	3.833571
49	435.37	3.312	172.973	96.749	3.316	2.824111
50	187.59	3.335	274.123	224.282	3.336	1.531754

AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1122.38	3.332	555555555	555555555	3.326	555555555555
SD	1524.63	3.343	555555555	555555555	3.325	555555555555
SE	215.61	3.336	555555555	555555555	3.334	555555555555

DATE 1/15/79
 MOBIL TYCO SAMPLE # 51 JPL # 145-7E 5-745 SPEC E
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .01 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 32.4X100

MAG=800.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	106.45	1513.964	3.676	0.910	1.221	1.000097
2	42.62	676.200	5.682	1.020	1.829	1.000014
3	34.04	484.170	4.808	1.576	0.717	0.000012
4	41.98	596.982	5.208	1.589	0.734	0.000015
5	1.51	21.509	23.438	20.833	0.067	0.000007
6	19.04	273.837	11.719	2.348	0.352	0.000011
7	44.23	629.026	6.048	1.420	1.768	1.000014
8	31.45	447.298	6.466	1.820	0.619	1.000024
9	42.62	676.200	5.515	1.972	1.111	1.000007
10	77.19	1097.833	5.559	1.488	0.749	1.000029
11	97.87	1391.934	4.808	1.431	0.789	1.000030
12	59.01	839.287	4.808	1.703	1.075	1.000015
13	44.07	626.831	3.676	1.311	0.885	1.000017
14	3.09	43.896	23.833	11.719	0.115	1.000004
15	2.35	33.361	62.500	26.786	0.045	0.000011
16	2.01	28.532	55.555555	31.250	0.035	1.000009
17	0.00	0.000	55.555555	55.555555	0.000	55.555555
18	89.44	1272.099	2.344	0.772	1.467	0.000031
19	56.02	796.708	2.259	0.997	1.248	0.000018
20	52.72	749.739	5.859	1.803	0.635	0.000034
21	9.23	131.248	13.393	2.930	0.363	0.000004
22	2.84	43.384	62.500	9.868	0.099	1.000006
23	60.86	865.624	8.929	2.107	0.528	1.000025
24	86.14	1225.130	8.929	2.259	0.493	1.000044
25	100.37	1427.490	4.364	1.901	1.200	1.000033

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	44.29	629.851	55.555555	55.555555	0.644	55.555555
SD	33.68	478.974	55.555555	55.555555	0.424	55.555555
SE	6.74	95.795	55.555555	55.555555	0.085	55.555555

26	80.83	1149.630	6.944	2.500	0.469	1.000041
27	95.96	1364.719	7.212	1.786	0.635	0.000073
28	20.00	284.444	8.523	2.287	0.480	1.000007
29	5.68	80.768	11.719	5.357	0.237	1.000004
30	54.94	781.344	5.859	1.242	0.880	1.000013
31	78.30	1114.074	4.076	0.997	1.112	1.000024
32	34.01	483.731	8.929	1.603	0.677	1.000010
33	79.07	1124.609	4.808	1.202	0.917	1.000021
34	46.20	657.119	8.152	1.293	0.824	1.000013
35	6.73	95.693	20.833	5.682	1.203	1.000006
36	6.85	97.449	9.375	0.906	0.291	1.000000
37	3.52	50.041	37.500	12.745	0.067	1.000008
38	15.80	224.746	12.500	3.472	0.325	1.000018
39	15.15	215.528	11.719	2.016	0.523	1.000008
40	4.60	65.405	20.833	8.929	0.152	1.000007
41	0.34	4.829	187.500	93.750	0.011	1.000002
42	1.98	28.093	46.875	18.750	0.064	1.000005
43	6.70	95.254	11.719	3.682	0.221	1.000008
44	3.80	53.992	37.500	13.393	0.088	1.000017
45	12.50	177.778	7.500	1.995	0.547	1.000004
46	0.00	0.000	55.555555	55.555555	0.000	55.555555
47	4.54	64.527	37.500	6.696	0.163	1.000004
48	24.97	355.117	11.029	2.083	0.523	1.000009
49	16.14	229.575	11.719	2.885	0.376	1.000007
50	37.07	527.188	4.934	1.311	0.837	0.000009

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	35.26	501.439	55.555555	55.555555	0.635	55.555555
SD	32.62	463.954	55.555555	55.555555	0.387	55.555555
SE	4.61	65.613	55.555555	55.555555	0.055	55.555555

DATE 1/15/79
 MOBIL TYCO SAMPLE # 51 JPL # 145-7E 3-745 SPEC 2
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENTS ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.1 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 3.375000 UNITS/PP
 FRAME AREA- 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	41.76	0.001	1116.071	1019.022	1.332	1.149375
2	1275.88	0.036	51.596	51.118	1.332	2.576978
3	899.41	0.026	73.128	54.222	0.026	2.216656
4	1353.03	0.038	52.847	51.426	0.032	2.941193
5	11572.16	0.329	12.066	11.875	0.136	14.458896
6	1394.31	0.040	44.222	42.154	0.039	2.036628
7	1344.31	0.038	49.867	47.710	0.033	2.537171
8	5002.16	0.142	16.161	13.740	0.107	4.021843
9	39.02	0.001	2467.105	2678.571	0.001	2.332331
10	18.04	0.001	2929.688	2285.585	0.001	1.617188
11	28.04	0.001	2604.167	1399.254	0.001	2.513672
12	100.59	0.033	473.485	496.032	0.033	1.182633
13	2237.84	0.064	43.123	32.873	0.044	5.553471
14	6002.16	0.171	13.676	12.250	0.128	4.378981
15	7887.25	0.224	12.164	11.716	0.134	7.759452
16	4275.10	0.122	16.083	16.119	0.101	3.041713
17	6537.06	0.186	10.856	10.856	0.147	2.623104
18	78.43	0.002	844.395	548.246	0.002	2.083333
19	970.20	0.028	74.464	44.222	0.029	3.078816
20	8699.80	0.247	14.470	10.643	0.103	12.655965
21	350.59	0.010	263.343	116.315	0.011	2.539773
22	5995.29	0.171	12.987	12.457	0.129	3.795013
23	404.12	0.011	130.389	134.498	0.013	1.583760
24	222.55	0.006	218.023	192.111	0.008	1.140067
25	66.86	0.002	694.444	625.100	0.003	1.922175

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	2671.85	0.076	489.561	396.886	0.051	3.662396
SD	3259.88	0.193	855.174	706.655	0.052	1.279282
SE	651.98	0.319	171.035	141.331	0.010	1.655856

26	1330.78	0.029	64.879	56.749	0.028	2.233431
27	315.69	0.009	145.801	148.810	0.012	1.115302
28	2274.90	0.065	33.602	28.626	0.055	2.852327
29	3936.47	0.112	17.211	17.164	0.095	2.789711
30	34.71	0.001	1065.341	1217.532	0.002	0.732077
31	301.37	0.009	259.695	129.489	0.009	2.771034
32	1542.94	0.044	46.388	38.772	0.040	2.520679
33	36.67	0.001	1488.095	1512.097	0.001	1.460938
34	260.78	0.007	165.636	163.043	0.010	1.000167
35	3909.80	0.111	19.354	19.294	0.086	3.768901
36	5668.24	0.161	12.069	10.073	0.150	2.310413
37	4142.75	0.118	17.878	16.852	0.094	3.732569
38	9976.86	0.284	8.462	8.444	0.193	5.874615
39	2189.61	0.062	27.943	28.784	0.058	2.329910
40	1356.86	0.039	40.921	39.607	0.041	1.782280
41	2944.71	0.084	22.482	18.803	0.080	2.386335
42	3881.18	0.110	17.080	16.444	0.098	2.661120
43	2293.73	0.065	27.308	27.436	0.060	2.422726
44	4757.45	0.135	15.005	14.372	0.114	3.014120
45	5155.49	0.147	14.039	13.909	0.118	3.301297
46	1278.82	0.036	57.657	33.256	0.038	2.061025
47	2289.02	0.065	27.158	27.836	0.061	2.148765
48	1100.98	0.031	45.754	44.986	0.035	1.368474
49	1316.86	0.037	42.867	45.268	0.038	1.939297
50	377.06	0.011	151.699	148.104	0.011	1.659030

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	2583.40	0.073	321.467	274.952	0.056	3.055929
SD	2836.21	0.080	672.568	574.719	0.050	2.510702
SE	396.86	0.011	95.115	81.278	0.007	3.355067

DATE 1/15/79
 MOBIL TYCO SAMPLE # 52 JPL # 145-7E 5-745 SPEC F
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENTS ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 30.40X100
 MAG-800.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
2	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
3	2.34	33.216	93.750	37.500	0.032	0.000010
4	44.93	639.064	5.559	1.933	0.595	0.000024
5	54.28	771.930	6.696	2.344	0.525	0.000039
6	54.67	777.544	6.696	1.589	0.691	0.000021
7	38.85	552.515	7.813	2.206	0.507	0.000021
8	78.09	1110.643	5.482	2.500	0.456	0.000048
9	63.72	906.199	7.212	1.995	0.571	0.000025
10	75.30	1070.877	5.208	1.674	0.680	0.000027
11	81.78	1163.041	3.606	0.942	1.184	0.000022
12	42.86	609.591	5.515	2.107	0.525	0.000020
13	17.66	251.228	11.029	3.676	0.312	0.000011
14	25.92	368.655	6.944	3.178	0.381	0.000016
15	12.70	180.585	20.833	7.500	0.157	0.000018
16	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
17	2.63	37.427	62.500	18.750	0.337	0.000011
18	33.03	469.708	6.944	2.160	0.536	0.000012
19	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
20	37.53	533.801	4.570	1.300	0.749	0.000019
21	56.55	804.211	6.250	1.689	0.656	0.000017
22	68.65	976.374	5.482	1.284	0.845	0.000015
23	52.66	749.006	3.479	1.302	0.885	0.000016
24	62.76	750.409	8.152	2.641	0.432	0.000038
25	84.14	1196.725	3.676	1.139	1.037	0.000030
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	39.24	558.110	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.472	\$\$\$\$\$\$\$\$\$
SE	27.94	397.437	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.334	\$\$\$\$\$\$\$\$\$
	5.59	79.486	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.767	\$\$\$\$\$\$\$\$\$
26	81.41	1157.895	4.464	1.042	0.029	0.000025
27	106.91	1520.468	3.024	0.928	0.216	0.000033
28	110.10	1565.848	3.348	1.563	0.779	0.000059
29	75.36	1071.813	3.538	0.962	0.179	0.000014
30	78.45	1115.789	3.315	0.660	0.709	0.000020
31	39.74	565.146	4.934	1.103	0.040	0.000008
32	111.68	1588.304	0.750	0.924	0.219	0.000053
33	33.78	480.468	8.523	2.315	0.483	0.000021
34	25.26	359.298	5.515	1.488	0.755	0.000006
35	69.57	989.474	8.152	0.919	0.582	0.000027
36	56.22	799.532	4.261	1.379	0.819	0.000018
37	91.09	1295.439	4.360	1.512	0.749	0.000030
38	17.20	244.678	23.438	7.500	0.149	0.000025
39	6.74	95.906	37.500	12.500	0.093	0.000014
40	38.62	549.240	3.989	1.705	0.696	0.000024
41	34.24	487.018	4.934	1.720	0.669	0.000011
42	19.14	272.281	10.417	3.472	0.320	0.000008
43	3.42	48.655	26.786	14.423	0.080	0.000007
44	10.00	142.222	14.423	4.808	0.243	0.000035
45	94.11	1338.480	3.374	0.910	0.232	0.000029
46	6.38	90.760	14.423	4.360	0.248	0.000014
47	0.76	10.760	93.750	62.500	0.027	0.000033
48	1.15	16.374	46.875	26.786	0.048	0.000005
49	0.46	6.550	93.750	46.875	0.029	0.000012
50	88.49	1258.480	6.250	2.107	0.544	0.000076
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	43.63	620.473	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.555	\$\$\$\$\$\$\$\$\$
SE	33.83	481.081	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.409	\$\$\$\$\$\$\$\$\$
	4.78	68.035	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.758	\$\$\$\$\$\$\$\$\$

DATE 1/15/79

MOBIL TYCO SAMPLE # 52 JPL # 145-7E 5-745 SPEC F

DISLOCATION PITS ONLY

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE DISLOCATION PIT AREA = 5.31 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR-
FRAME AREA- 3.515625000 14

1.375000 UNITS/PP

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	2278.95	0.065	26.042	0.058	2.875942
2	2444.65	0.070	29.640	0.054	3.773344
3	553.18	0.016	279.018	0.007	4.870739
4	693.10	0.020	175.456	0.017	3.920050
5	937.93	0.027	79.517	0.022	3.633750
6	983.67	0.028	95.859	0.018	5.483363
7	1566.61	0.045	35.186	0.049	1.819903
8	253.54	0.007	229.779	0.008	2.025290
9	823.23	0.023	66.964	0.026	2.184573
10	689.47	0.020	93.098	0.018	2.753785
11	681.60	0.018	102.909	0.016	3.067775
12	230.31	0.007	808.190	0.007	4.957031
13	259.35	0.007	161.360	0.010	1.445736
14	2481.94	0.071	33.000	0.057	3.806621
15	1399.27	0.031	55.382	0.034	1.892813
16	2831.43	0.081	24.113	0.066	3.364863
17	4203.99	0.120	16.993	0.098	2.757137
18	2786.39	0.079	21.742	0.077	2.692039
19	233.21	0.007	218.068	0.008	1.688814
20	2697.46	0.077	23.891	0.070	2.882909
21	892.88	0.025	65.014	0.024	2.542107
22	1207.26	0.034	45.956	0.036	2.033560
23	38.48	0.001	1464.844	0.002	1.490625
24	714.34	0.020	84.536	0.021	2.471982
25	3234.12	0.092	26.924	0.064	5.199040

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1393.19	0.040	167.403	108.496	0.035	3.065318
SD 1114.26	0.032	808.133	176.026	0.026	1.161838
SE 222.85	0.006	61.627	35.205	0.035	3.232168

26	498.91	0.014	105.219	0.016	1.832124
27	600.00	0.017	151.699	0.012	4.743941
28	44.10	0.001	3348.214	0.001	3.417188
29	208.71	0.006	379.555	0.006	2.450284
30	249.36	0.007	260.417	0.007	1.971623
31	172.41	0.005	247.361	0.007	1.141827
32	203.81	0.006	254.065	0.007	1.815194
33	4409.44	0.125	16.396	0.101	4.043343
34	1137.08	0.031	57.026	0.035	2.123298
35	379.31	0.011	138.479	0.013	1.571691
36	1680.04	0.048	35.701	0.049	2.155241
37	1278.04	0.036	51.568	0.033	3.094629
38	301.81	0.009	150.240	0.011	1.277923
39	1632.30	0.046	36.693	0.047	2.226728
40	1196.31	0.034	44.452	0.034	2.328439
41	4307.62	0.123	17.268	0.097	3.612267
42	287.84	0.008	159.710	0.011	1.186336
43	1371.96	0.037	59.751	0.037	2.455113
44	817.60	0.023	74.731	0.025	2.199707
45	31.58	0.001	1488.095	0.001	1.112216
46	2422.14	0.069	26.770	0.061	2.878499
47	6859.35	0.195	9.881	0.167	3.496659
48	5360.37	0.144	14.738	0.113	2.362973
49	4718.69	0.134	14.578	0.108	3.893773
50	358.62	0.010	129.113	0.014	1.192597

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1493.31	0.042	229.147	144.759	0.037	2.778326
SD 1546.36	0.044	535.742	264.067	0.036	1.134817
SE 218.65	0.006	75.765	37.345	0.005	1.160487

DATE 1/16/79
 MOBIL TYCO SAMPLE # 53 JPL # 145-7E 1 5-745 SPEC G
 TWINS ONLY
 QTM OUTPUT DATA BEING DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA=28.11X100

MAG-800.0 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PP
 FRAME AREA- 3.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	93.60	1331.151	2.155	1.826	1.440	0.000028
2	89.40	1271.449	3.538	1.369	0.843	0.000044
3	105.69	1533.174	3.178	1.410	0.848	0.000038
4	96.48	1372.133	3.348	0.947	1.168	0.000025
5	74.64	1061.481	4.360	1.311	1.859	0.000025
6	10.00	142.172	11.029	4.464	1.269	0.000018
7	4.02	57.172	37.500	15.625	1.000	0.000008
8	28.53	435.771	5.859	2.757	1.451	0.000028
9	45.32	644.579	4.573	1.736	1.691	0.000018
10	113.63	1616.001	5.068	1.000	1.024	0.000022
11	71.50	1016.957	4.808	1.020	1.640	0.000028
12	71.43	1015.945	3.233	1.276	0.933	0.000022
13	44.43	631.930	5.859	1.537	1.712	0.000023
14	36.39	517.586	1.261	1.453	1.029	0.000011
15	100.43	1428.294	3.233	1.194	1.960	0.000025
16	112.91	1675.882	5.357	1.589	1.693	0.000032
17	101.89	1449.038	3.676	1.242	1.957	0.000040
18	63.46	902.613	3.827	1.933	1.147	0.000013
19	58.31	829.250	1.027	1.410	1.848	0.000014
20	13.09	186.189	11.029	2.717	1.405	0.000005
21	22.02	313.182	5.315	1.720	1.656	0.000006
22	110.57	1573.489	5.859	1.576	1.720	0.000044
23	51.33	730.084	4.808	1.020	1.635	0.000025
24	58.52	832.286	2.799	1.218	1.976	0.000017
25	2.06	29.345	93.750	26.786	1.145	0.000008
26	1.25	17.708	62.500	26.786	1.045	0.000002
27	2.06	29.345	37.500	15.625	1.080	0.000004
28	1.00	14.167	187.500	93.750	1.040	0.000004
29	9.75	138.630	15.625	3.289	0.331	0.000004
30	90.57	1288.146	5.859	1.803	1.635	0.000033
31	9.25	131.547	15.625	6.250	1.195	0.000007
32	9.53	135.594	12.500	5.315	1.213	0.000009
33	69.12	983.059	6.748	1.316	1.560	0.000025
34	107.83	1533.531	6.696	1.913	0.589	0.000043

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	55.29	786.408	17.421	6.962	0.633	0.000020
SD	39.38	560.096	35.043	16.476	0.358	0.000013
SE	6.75	96.056	6.010	2.826	0.061	0.000002

35	66.70	948.654	4.688	1.234	0.891	0.000018
36	47.85	680.501	6.466	1.410	1.736	0.000013
37	94.34	1341.776	4.573	1.143	1.973	0.000019
38	60.69	863.149	4.360	1.359	1.816	0.000015
39	66.74	949.160	4.167	0.884	1.219	0.000015
40	44.82	637.496	4.934	1.659	1.701	0.000012
41	12.74	181.130	9.868	3.125	0.365	0.000018
42	0.00	0.000	55555555	55555555	0.000	5555555555
43	0.89	12.649	93.750	31.250	1.043	0.000004
44	4.52	64.256	18.750	9.868	0.128	0.000006
45	5.41	76.904	23.438	8.152	0.144	0.000021
46	15.40	219.076	11.719	2.534	0.427	0.000006
47	21.84	310.653	6.466	1.465	1.739	0.000005
48	3.66	52.113	26.786	5.315	1.173	0.000003
49	26.82	381.485	6.466	2.038	1.549	0.000012
50	63.16	855.560	5.208	1.953	1.584	0.000018

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	48.25	686.249	55555555	55555555	0.400	5555555555
SD	37.77	537.007	55555555	55555555	1.360	5555555555
SE	5.34	75.972	55555555	55555555	1.051	5555555555

DATE 1/16/79
 MOBIL TYCO SAMPLE # 53 JPL # 145-7E 5-745 SPEC G
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.33 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.515625000 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	335.65	0.010	189.712	138.479	1.010	1.124232
2	539.31	0.014	143.568	112.816	0.012	1.777382
3	81.05	0.002	515.110	341.908	0.003	1.125000
4	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
5	111.26	0.003	412.996	242.248	0.004	1.042383
6	3836.00	0.108	21.909	21.956	0.073	1.004770
7	5490.62	0.156	18.594	17.699	0.085	0.570676
8	4309.19	0.123	17.316	18.225	0.086	0.234836
9	1701.13	0.048	45.554	38.002	0.040	0.109763
10	335.46	0.010	206.954	144.009	0.005	0.923692
11	212.20	0.006	289.352	282.380	0.017	1.817351
12	489.49	0.014	116.460	116.750	0.014	0.512949
13	479.36	0.014	136.293	93.755	0.015	0.303185
14	2438.27	0.069	33.242	31.630	0.052	0.616000
15	304.13	0.009	159.168	127.725	0.012	1.688542
16	421.76	0.012	309.406	179.942	0.008	0.322500
17	741.28	0.021	75.911	61.315	0.026	1.935921
18	363.23	0.010	147.871	112.007	0.012	0.231400
19	242.59	0.007	232.054	182.009	0.010	1.527967
20	4289.31	0.122	17.773	17.566	0.091	0.999951
21	500.56	0.014	92.092	82.454	0.019	1.311844
22	61.35	0.002	815.217	535.714	0.002	1.483367
23	2071.29	0.059	24.861	25.566	0.045	0.207645
24	98.12	0.003	710.227	794.492	0.003	1.564827
25	6427.02	0.183	13.015	13.332	0.129	0.986801

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1432.65	0.041	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.031	\$\$\$\$\$\$\$\$\$
SD 1865.62	0.053	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.034	\$\$\$\$\$\$\$\$\$
SE 373.12	0.011	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.007	\$\$\$\$\$\$\$\$\$

26	2715.23	0.077	23.068	23.137	0.073	0.381263
27	4192.12	0.119	18.909	17.364	0.087	0.776593
28	2569.98	0.073	31.136	27.960	0.054	0.328722
29	974.48	0.028	73.969	57.551	0.027	0.442833
30	101.69	0.003	430.046	438.084	0.005	1.858994
31	2516.38	0.071	28.263	24.548	0.061	0.917095
32	2649.16	0.075	26.468	25.770	0.063	0.171925
33	197.00	0.006	211.149	252.016	0.008	1.127147
34	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
35	6.38	0.000	4934.211	5859.375	0.000	1.593750
36	174.67	0.005	289.352	184.185	0.007	1.925322
37	368.48	0.010	167.112	128.425	0.011	1.878827
38	8.63	0.000	4464.286	4687.500	0.000	0.808594
39	484.05	0.014	116.171	109.906	0.014	0.385120
40	136.32	0.004	336.022	302.419	0.006	1.145541
41	2966.42	0.084	21.628	21.201	0.077	0.701636
42	5114.63	0.145	14.261	14.037	0.114	0.682592
43	2836.59	0.081	23.740	23.716	0.069	0.932565
44	4755.35	0.135	14.869	14.757	0.111	0.515370
45	5034.33	0.143	14.750	15.568	0.108	0.823091
46	1253.47	0.036	48.550	42.249	0.037	0.453575
47	675.23	0.019	101.024	68.581	0.029	0.181506
48	1433.58	0.041	37.440	31.065	0.052	1.650562
49	349.72	0.010	122.709	125.839	0.013	1.175448
50	500.94	0.014	91.912	98.997	0.019	1.251563

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1556.36	0.044	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.036	\$\$\$\$\$\$\$\$\$
SD 1782.66	0.051	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.036	\$\$\$\$\$\$\$\$\$
SE 252.11	0.007	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.005	\$\$\$\$\$\$\$\$\$

DATE: 1/20/79
MOBIL TYCO SAMPLE #54 JPL # 145-7E-5-745 SPEC H
TWIN ONLY
3FM OUTPUT DIVIDED BY 100
.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN ARE 28.33X133

MAG-800.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
FRAME AREA- 7.070313

FIELD	NO.	NO./AREA	MFPV	MPPH	L/A	AFETA
1	83.59	1147.617	11.719	3.753	1.337	3.333341
2	21.54	334.847	14.417	1.823	3.635	1.333325
3	72.86	1336.159	13.417	2.259	1.488	1.333324
4	13.98	198.833	62.533	11.719	1.296	3.333356
5	5.79	82.331	26.786	11.329	1.117	3.333338
6	45.53	647.134	14.423	2.841	1.379	1.333318
7	113.38	1569.816	8.929	1.442	3.763	1.333327
8	46.98	668.188	13.417	1.974	1.552	1.333313
9	131.27	1867.312	13.417	2.316	3.557	1.333344
10	131.45	1442.835	15.625	2.568	1.429	1.333367
11	41.23	586.359	12.533	1.995	1.541	1.333311
12	95.45	1357.462	8.523	1.453	1.747	3.333321
13	78.36	1114.484	8.523	3.289	1.371	1.333331
14	53.44	717.386	14.417	1.833	1.579	1.333313
15	49.52	734.334	13.417	1.723	1.589	1.333312
16	6.14	87.351	26.786	9.868	1.123	1.333318
17	7.62	138.436	31.253	14.423	1.393	1.333315
18	5.38	72.291	93.753	23.438	1.353	3.333311
19	74.93	1365.286	11.329	1.488	1.717	1.333315
20	49.24	733.318	13.417	1.659	3.643	1.333312
21	92.48	1315.292	7.523	1.856	1.627	1.333333
22	37.95	539.671	8.929	1.233	1.363	3.333319
23	43.38	574.311	12.533	1.974	1.539	1.333311
24	36.25	515.574	23.833	3.753	1.293	1.333318
25	39.33	554.732	12.533	1.689	1.611	1.333319

	NO.	NO./AREA	MFPV	MPPH	L/A	AFETA
AVERAGE						
	53.46	753.319	18.742	4.632	3.447	1.333322
SD	34.47	493.215	19.354	5.269	3.214	1.333315
SE	6.89	98.343	3.811	1.054	3.043	1.333313

26	48.18	685.257	18.753	3.989	1.283	1.333332
27	71.73	1320.134	14.423	3.472	3.337	1.333348
28	38.97	554.233	15.625	2.155	3.496	1.333319
29	22.73	323.331	17.145	3.827	1.285	3.333313
30	142.64	2328.662	12.533	1.178	3.368	1.333381
31	143.52	1998.541	13.393	2.467	1.453	1.333356
32	81.15	1154.144	11.329	1.633	1.661	1.333323
33	97.21	1382.563	11.719	2.534	1.448	1.333335
34	135.93	1536.562	8.929	1.563	1.728	1.333326
35	51.15	727.427	15.625	2.373	1.456	1.333329
36	47.79	679.735	23.833	3.472	3.315	3.333327
37	55.17	784.657	12.533	1.259	3.512	1.333323
38	134.59	1487.485	13.393	3.178	1.365	1.333352
39	121.71	1733.964	12.533	2.131	1.491	3.333343
40	83.76	1191.293	11.719	2.679	1.413	1.333333
41	97.14	1381.559	9.868	1.413	3.736	1.333323
42	95.31	1355.454	11.329	1.735	1.688	1.333327
43	28.87	413.652	17.345	3.636	1.317	3.333316
44	23.33	288.661	23.833	5.357	1.211	1.333323
45	111.72	1588.893	7.212	4.938	1.277	1.333374
46	36.53	523.595	8.929	2.885	1.411	1.333315
47	7.66	138.938	17.345	11.719	1.123	1.333336
48	3.42	48.696	31.253	9.375	1.128	1.333331
49	5.38	72.291	23.438	17.145	1.383	1.333332
50	3.57	53.734	26.786	17.345	3.383	1.333331

	NO.	NO./AREA	MFPV	MPPH	L/A	AFETA
AVERAGE						
	59.19	841.787	17.339	4.618	1.416	1.333325
SD	39.31	559.315	14.161	4.819	1.233	1.333319
SE	5.56	79.357	2.333	1.682	1.329	1.333333

DATE 1/20/79

MOBIL TYCO SAMPLE # 54 JPL # 145-7E 5-745 SPEC F

DISLOCATION PITS ONLY

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE DISLOCATION PIT AREA = 5.34 μ^2

MAG-800.0 UNITS-MICRONS CAL. FACTOR-
FRAME AREA- 3.515625000 34

3.375133 UNITS/ μ^2

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1 37.27	3.331	453.721	485.751	3.331	1.139922
LAST FIELD DELETED					
1 227.53	3.336	387.397	140.135	3.337	2.373347
2 1301.12	3.337	41.993	38.517	3.343	1.934777
3 4917.79	3.143	15.369	15.463	3.135	4.383611
4 7633.56	3.216	11.485	11.748	3.142	6.351276
5 233.75	3.336	774.793	382.298	3.334	3.275862
6 779.21	3.322	92.456	52.728	3.333	2.285716
7 975.84	3.328	56.239	51.483	3.331	1.757337
8 83.93	3.332	558.336	568.182	3.333	1.292553
9 336.55	3.339	188.632	131.857	3.312	1.566738
13 3366.67	3.387	18.197	18.444	3.392	2.333754
11 513.11	3.315	144.339	79.787	3.317	2.551738
12 1476.78	3.342	39.945	31.513	3.348	1.983844
13 948.13	3.327	58.350	51.868	3.333	1.858967
14 2173.97	3.362	28.743	23.532	3.358	2.733591
15 3985.39	3.113	23.187	17.642	3.381	5.241298
16 1376.22	3.331	47.713	48.353	3.335	1.587744
17 967.86	3.327	53.513	42.633	3.336	1.443213
18 448.69	3.313	578.704	143.568	3.339	12.333482
19 146.44	3.334	561.377	315.657	3.335	2.199375
20 2636.52	3.075	33.311	27.541	3.057	4.828925
21 1606.93	3.346	33.931	32.783	3.350	1.949440
22 713.11	3.320	63.758	61.475	3.328	1.171772
23 137.33	3.333	378.324	418.527	3.335	1.337227
24 2189.89	3.362	30.577	32.239	3.351	3.763386
25 1747.94	3.357	35.525	36.295	3.346	3.365625

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1607.65	3.346	169.936	118.931	3.341	3.365373
SD 1724.93	3.349	221.173	163.885	3.334	2.313117
SE 344.99	3.313	44.234	32.777	3.337	3.462622

26 661.42	3.319	77.672	59.981	3.326	1.313521
27 944.19	3.327	57.942	55.375	3.329	1.772578
28 53.75	3.332	781.253	774.793	3.332	3.917259
29 289.51	3.338	455.397	157.828	3.332	5.721217
30 147.57	3.334	471.136	269.397	3.335	1.583336
31 233.21	3.337	211.625	219.555	3.338	1.471875
32 75.28	3.332	1171.875	1253.000	3.331	2.318973
33 335.77	3.313	234.694	151.454	3.313	2.383837
34 1519.13	3.343	33.186	33.411	3.351	1.495085
35 1365.92	3.339	48.433	45.821	3.336	3.361847
36 2561.89	3.373	23.885	22.423	3.372	2.343179
37 167.42	3.335	254.755	245.419	3.337	1.356463
38 869.48	3.325	73.128	57.551	3.325	2.981378
39 383.93	3.311	143.555	114.351	3.313	1.473823
43 666.85	3.319	95.556	82.165	3.319	2.149239
41 1211.61	3.334	49.629	46.483	3.335	2.121879
42 779.43	3.322	76.334	66.395	3.324	1.736743
43 1435.81	3.343	43.423	41.173	3.339	2.785414
44 1718.73	3.349	41.346	34.677	3.345	2.923337
45 5719.65	3.163	12.963	11.134	3.135	3.384641
46 1612.92	3.346	35.906	29.115	3.351	1.829512
47 1479.43	3.342	44.376	35.714	3.342	1.874584
48 2881.65	3.382	24.262	24.162	3.365	3.871787
49 5146.82	3.146	12.552	12.416	3.132	3.812422
53 249.36	3.337	221.631	230.344	3.338	1.558594

$\bar{X}$ 1434.39

SD 1590.67

DATE 1/23/79
 MOBIL TYCO #55 JPL 144-30 S 5-743 SPEC
 TWINS ONLY
 QFM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 25.84 X 100

MAG-833.3 INITS-MM GAL. FACTOR- 1.003375 INITS/00
 FRAME AREA- 3.073313

FIELD NO.	NO./AREA	MPV	MPPH	L/A	AFETA
1	144.70	2357.929	11.329	3.403	1.000088
2	104.45	1485.518	7.530	1.840	1.000116
3	122.45	1741.452	8.929	1.869	1.000022
4	175.54	2496.594	11.129	3.421	1.000083
5	28.21	431.238	15.625	3.339	1.000113
6	43.59	618.645	5.682	1.974	1.000007
7	49.73	737.258	7.813	1.555	1.000079
8	57.62	819.539	11.029	1.966	1.000017
9	61.53	875.129	17.345	1.399	1.000113
10	47.02	668.731	13.393	1.524	1.000008
11	42.34	602.133	13.393	2.259	1.000079
12	91.87	1336.639	8.152	1.194	1.000015
13	56.15	798.624	9.868	1.833	1.000011
14	54.53	775.507	12.530	1.736	1.000013
15	92.84	1324.399	11.719	1.103	1.000013
16	90.83	1291.778	9.868	1.150	1.000014
17	73.34	1043.000	11.029	1.369	1.000013
18	54.18	770.554	10.417	1.745	1.000017
19	33.17	471.689	13.393	2.930	1.000011
20	155.19	2207.086	15.625	3.233	1.000043
21	40.09	570.210	8.523	1.359	1.000006
22	139.75	1563.922	11.029	1.563	1.000023
23	93.23	1325.933	8.929	1.194	1.000018
24	48.53	693.196	4.466	1.753	1.000035
25	53.29	757.895	8.152	1.803	1.000009
AVERAGE					
NO.	NO./AREA	MPV	MPPH	L/A	AFETA
SD	39.15	556.786	7.846	1.716	1.000021
SE	7.83	111.357	1.569	1.143	1.000004
26	71.40	1015.480	11.029	1.116	1.000017
27	45.32	644.513	9.868	1.218	1.000006
28	93.67	1289.577	9.375	1.234	1.000013
29	75.93	1079.876	5.859	1.187	1.000008
30	41.98	582.869	6.696	1.674	1.000007
31	13.35	189.886	18.750	5.357	1.000034
32	53.68	763.399	6.944	1.856	1.000007
33	33.30	430.960	8.152	2.435	1.000005
34	25.81	367.114	11.029	1.752	1.000004
35	15.67	222.910	14.423	3.409	1.000004
36	14.98	213.703	23.438	3.024	1.000005
37	32.28	459.030	12.530	2.674	1.000007
38	19.93	283.454	26.786	3.138	1.000007
39	10.57	150.258	20.833	4.360	1.000003
40	11.30	160.716	17.345	2.976	1.000003
41	15.83	225.112	20.833	3.676	1.000005
42	8.28	117.785	18.750	4.261	1.000003
43	0.19	2.752	55555555	187.500	1.000001
44	49.38	732.305	13.393	2.568	1.000016
45	23.14	329.137	18.750	4.261	1.000008
46	105.26	1497.076	6.048	1.974	1.000024
47	58.90	837.732	9.868	2.641	1.000012
48	6.42	91.366	93.753	11.719	1.000008
49	5.80	82.559	46.875	17.345	1.000004
50	9.33	132.645	18.750	3.989	1.000003
AVERAGE					
NO.	NO./AREA	MPV	MPPH	L/A	AFETA
SD	40.45	575.237	55555555	25.999	1.000016
SE	5.72	81.351	55555555	3.677	1.000002

DATE 1/23/79
 MOBIL TYCO #55 JPL # 144-30#5-743 SPEC A
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.22 PP

MAG-800.1 UNITS-MICRONS CAL. FACTOR-
 FRAME AREA- 3.515625000 14

FIELD NO. NO./AREA MFPV MFPH L/A AFETA
 MAG-800.1 UNITS-MICRONS CAL. FACTOR- 3.375000 UNITS/PP
 FRAME AREA- 3.515625000 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	140.23	1.734	367.547	203.362	3.376	1.354441
2	63.15	1.002	2757.353	214.741	3.371	3.154418
3	8.43	0.000	5514.796	8522.727	3.303	1.546875
4	7.33	1.000	55555555	55555555	3.371	55555555
5	2300.38	1.065	26.506	28.426	1.062	2.218955
6	4181.61	0.119	19.426	20.829	1.086	3.590132
7	1437.55	1.041	39.226	42.594	1.044	1.819397
8	280.27	0.008	461.823	243.804	1.006	5.217912
9	2.87	0.000	13392.857	23437.500	1.000	1.054688
10	33.91	0.001	1186.709	1284.247	1.002	3.829688
11	201.92	0.006	246.711	248.674	1.007	1.377164
12	23.95	0.001	1616.379	1839.235	1.011	1.099633
13	394.44	0.011	116.674	128.777	1.015	1.162839
14	1563.33	0.044	49.293	47.114	1.033	3.619430
15	32.76	1.001	915.217	1041.667	1.002	1.632813
16	52.68	1.001	1143.293	347.222	1.002	1.681386
17	239.27	1.007	1217.532	207.412	1.004	5.854688
18	452.30	1.013	171.389	163.328	1.010	2.656125
19	4077.01	0.116	17.323	19.334	1.095	2.905613
20	1.00	0.000	55555555	55555555	1.000	55555555
21	1934.57	0.055	44.579	35.769	0.048	3.632153
22	27.59	1.001	416.776	1512.097	1.006	1.753330
23	446.36	0.013	254.755	203.362	0.010	4.311266
24	4295.21	1.122	15.349	17.445	1.105	2.763324
25	5493.68	1.156	22.989	23.603	1.073	6.858339

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1107.21	1.001	55555555	55555555	1.025	55555555
SD 1629.72	0.046	55555555	55555555	1.000	55555555
SE 325.94	0.009	55555555	55555555	1.007	55555555

26	72.33	0.002	694.474	794.492	1.002	1.555147
27	429.31	1.012	119.885	121.595	1.016	2.143814
28	5.75	0.000	1041.667	183.135	1.006	1.054688
29	372.41	1.011	178.912	152.936	1.012	2.377174
30	3552.68	0.101	27.647	23.327	1.062	4.113392
31	8000.19	1.228	10.955	11.523	1.153	4.231009
32	3332.95	1.086	27.844	22.541	1.085	3.446431
33	4810.73	0.137	14.931	14.207	1.122	2.997772
34	2178.54	0.062	31.428	30.193	1.058	2.506563
35	778.35	0.022	58.630	65.014	1.029	1.177818
36	1337.55	1.008	35.377	34.505	1.048	1.221199
37	1968.58	1.056	31.823	31.587	1.058	1.979538
38	1692.91	0.048	33.399	40.236	0.049	2.219113
39	2331.80	1.058	36.323	40.993	1.057	1.972842
40	1404.60	1.040	38.438	46.572	1.038	1.744607
41	1555.56	0.044	32.643	36.225	1.052	1.438133
42	499.23	0.014	102.459	99.101	1.017	1.372542
43	1551.53	1.044	29.952	24.510	1.058	1.215498
44	1382.57	1.039	43.838	41.722	1.041	1.815547
45	1219.73	0.035	38.485	32.762	1.043	1.412239
46	788.31	1.022	241.003	78.760	1.014	7.418874
47	959.39	0.027	52.847	61.634	1.034	1.721893
48	1862.84	1.053	27.893	11.651	1.059	1.659512
49	624.90	0.018	74.464	83.541	0.021	1.183323
50	1366.09	0.039	34.378	36.937	1.049	1.317736

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1423.18	1.040	55555555	55555555	1.036	55555555
SD 1678.08	1.048	55555555	55555555	1.035	55555555
SE 237.32	0.007	55555555	55555555	1.005	55555555

DATE 1/23/79
 MOBIL TYCO SAMPLE # 56 JPL # 144-30 #5-743 SPEC B
 TWINS ONLY
 QIM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 28.44 X 100

MAG-800.9 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 0.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	8.40	119.519	20.833	1.464	1.000003
2	25.88	368.058	18.750	2.083	1.000006
3	72.64	1033.161	8.929	3.952	1.000019
4	24.40	347.054	17.500	5.859	1.000020
5	35.53	519.581	20.833	1.995	1.000010
6	33.70	436.568	14.423	1.524	1.000005
7	14.66	208.533	23.438	2.584	1.000004
8	99.89	1412.221	8.152	1.972	1.000012
9	100.39	1427.723	8.152	1.059	1.000015
10	73.31	1042.663	12.500	1.258	1.000012
11	119.34	1697.265	8.523	1.090	1.000018
12	83.26	1184.185	11.029	1.293	1.000012
13	78.41	1115.174	11.719	1.165	1.000014
14	39.87	566.788	14.423	1.210	1.000006
15	21.06	299.547	18.393	1.476	1.000003
16	4.68	66.510	26.786	9.868	1.000005
17	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$
18	75.18	1069.167	17.045	2.180	1.000003
19	108.33	1540.741	14.417	1.512	1.000029
20	106.00	1513.236	9.375	1.841	1.000013
21	131.68	1872.793	11.029	1.936	1.000018
22	64.56	918.143	11.719	2.844	1.000016
23	111.46	1585.248	9.868	1.103	1.000021
24	55.03	782.622	12.500	1.589	1.000011
25	22.68	322.550	12.500	2.679	1.000006
AVERAGE					
	NO.	NO./AREA	MFPV	MFPH	L/A
SD	60.32	857.934	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.687
	39.53	561.722	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.343
SE	7.90	112.344	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.069
26	17.26	245.538	20.833	1.674	1.000003
27	13.33	189.533	23.438	2.568	1.000004
28	23.49	334.052	14.423	1.913	1.000005
29	86.50	1230.192	8.152	1.876	1.000010
30	24.93	354.555	26.786	3.472	1.000010
31	115.58	1643.757	8.523	1.136	1.000019
32	18.99	270.742	20.833	2.155	1.000005
33	53.02	754.118	11.719	1.330	1.000011
34	72.86	1036.162	11.029	1.379	1.000015
35	27.64	393.061	8.929	2.131	1.000006
36	19.34	275.043	14.423	1.167	1.000011
37	6.05	86.013	22.500	14.423	1.000008
38	77.32	1099.672	6.048	1.157	1.000013
39	57.59	819.128	11.029	1.500	1.000013
40	74.75	1063.166	9.868	1.856	1.000023
41	9.18	130.520	15.625	4.360	1.000004
42	64.38	915.643	5.682	1.242	1.000018
43	16.28	231.536	18.750	3.989	1.000008
44	92.41	1314.235	9.868	1.769	1.000022
45	43.04	612.096	11.719	2.180	1.000014
46	100.88	1434.724	8.929	1.320	1.000022
47	78.41	1115.174	9.375	1.899	1.000016
48	144.55	2055.821	9.375	1.674	1.000052
49	129.47	1841.288	14.417	1.550	1.000043
50	88.36	1256.696	7.500	1.820	1.000027
AVERAGE					
	NO.	NO./AREA	MFPV	MFPH	L/A
SD	59.27	843.032	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.451
	39.53	561.749	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.344
SE	5.59	79.443	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.043

DATE 1/20/79
 MOBIL TYGO SAMPLE # 56 JPL 144-30 # 5-743 SPEC 3
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.16PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.515625000 94

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	1635.34	1.074	31.163	24.206	1.693877
2	503.29	0.014	105.131	111.874	1.421724
3	981.40	0.028	78.518	57.339	2.931556
4	1275.58	1.036	48.375	41.501	1.924311
5	69.19	0.002	689.338	756.048	1.255378
6	1194.38	0.034	16.735	47.444	1.604948
7	3877.54	1.112	16.934	18.542	2.323746
8	0.00	1.000	55555555	55555555	1.000 5555555555
9	138.37	0.004	428.782	385.802	1.004 1.498631
10	55.23	0.002	721.154	884.434	0.002 1.054688
11	29.26	1.001	2929.688	2757.353	1.001 1.633413
12	989.53	1.028	53.510	54.953	1.032 1.453568
13	93.02	0.003	937.500	956.633	0.003 2.812500
14	706.98	0.020	76.844	73.994	1.023 1.382749
15	2588.57	0.074	34.434	33.881	1.054 3.779332
16	4146.12	0.118	14.857	16.447	0.111 2.220318
17	2342.44	1.058	33.482	32.780	1.049 2.734404
18	0.00	0.000	55555555	55555555	0.000 5555555555
19	2270.35	1.065	34.103	37.955	1.047 2.484799
20	4.46	1.000	5522.727	18750.000	1.000 1.078125
21	70.54	0.002	1302.083	517.956	1.002 2.531257
22	765.31	0.022	114.609	84.383	1.023 1.895318
23	58.91	0.002	1008.065	986.842	0.002 2.335714
24	7870.93	1.224	13.583	14.488	1.119 5.402878
25	1912.21	1.054	15.351	32.194	1.053 2.392322
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1369.67	1.039	55555555	55555555	1.033 5555555555
SE	1789.67	1.051	55555555	55555555	1.036 5555555555
SE	357.93	0.010	55555555	55555555	1.007 5555555555
26	9608.53	1.273	14.372	14.361	1.118 8.773047
27	1684.69	0.048	47.229	37.443	1.043 2.568179
28	263.95	1.008	274.927	189.777	1.009 2.588260
29	618.99	0.018	182.790	90.318	1.017 2.566607
30	78.13	0.002	704.887	732.422	0.003 1.491365
31	1348.06	1.038	46.160	45.554	1.037 2.068353
32	20.93	1.001	2929.688	2604.167	1.001 1.265625
33	174.61	0.005	791.149	280.489	1.007 1.131278
34	186.63	0.005	625.000	338.448	1.004 1.660051
35	8351.55	0.238	9.494	9.727	1.183 3.368590
36	1482.36	1.042	32.172	34.054	1.052 1.307654
37	2142.05	0.061	43.747	25.748	1.052 2.867764
38	595.74	0.017	178.912	114.051	1.010 2.263253
39	1261.43	0.036	50.107	46.411	1.036 1.591875
40	3158.33	1.090	19.766	21.105	1.085 2.085319
41	1887.21	0.054	45.665	28.989	1.050 2.633474
42	542.25	0.015	190.937	100.482	1.015 2.893153
43	1137.36	1.031	94.889	30.301	1.035 2.92596
44	1151.55	0.033	48.475	46.251	1.037 1.564782
45	711.05	0.020	82.965	98.374	1.021 2.233563
46	633.14	0.018	107.759	101.351	1.017 2.050991
47	624.61	0.018	264.831	98.580	1.014 6.383583
48	1052.71	1.030	49.525	54.379	0.033 1.575010
49	260.66	0.007	261.142	169.837	0.009 2.199310
50	70.74	1.002	997.340	593.354	1.002 1.974159
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1465.18	1.042	55555555	55555555	1.034 5555555555
SD	2071.13	1.059	55555555	55555555	1.038 5555555555
SE	292.90	1.008	55555555	55555555	1.005 5555555555

DATE 1/23/79
 MOBIL TYCO SAMPLE # 57 JPL # 144-30 #5-743 SPEC 7
 TWINS ONLY
 JTM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 29.22 X 100

MAG-800.0 UNIFS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 0.070313

	FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
	1	103.11	1466.518	11.719	1.705	1.611	1.000025
	2	37.51	533.455	12.500	2.500	1.459	1.000013
	3	31.04	441.453	14.423	2.206	1.483	1.000010
	4	85.46	1215.362	10.417	1.143	1.917	1.000015
	5	47.19	671.199	13.393	1.689	1.621	1.000011
	6	52.43	745.182	13.393	1.603	1.672	1.000013
	7	34.91	496.464	8.523	1.500	1.752	1.000037
	8	61.23	870.758	11.729	1.389	1.763	1.000013
	9	57.56	818.678	13.393	1.705	1.675	1.000014
	10	39.84	566.553	10.417	1.813	1.633	1.000010
	11	46.61	662.925	9.868	2.232	1.493	1.000014
	12	28.41	403.985	12.500	1.431	1.723	1.000016
	13	54.07	769.332	11.729	2.183	1.515	1.000017
	14	44.63	634.695	8.523	1.232	1.765	1.000017
	15	34.70	493.543	9.868	2.717	1.435	1.000013
	16	83.90	1150.627	8.152	2.534	1.480	1.000042
	17	124.50	1770.720	12.500	1.202	1.859	1.000028
	18	118.04	1678.728	10.417	1.410	1.787	1.000024
	19	108.32	1540.497	8.929	1.210	1.859	1.000022
	20	110.61	1573.108	7.500	1.218	1.891	1.000030
	21	68.07	968.104	8.152	1.423	1.685	1.000023
	22	39.29	558.765	13.393	1.913	1.552	1.000009
	23	23.27	330.976	18.750	4.167	1.259	1.000019
	24	10.51	149.426	37.500	7.500	1.136	1.000011
	25	57.15	812.837	12.500	2.534	1.437	1.000023
	26	24.44	347.525	15.625	1.820	1.576	1.000007
			AVERAGE				
		NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
		58.61	833.505	12.477	2.074	1.613	1.000017
SD		31.37	446.120	5.615	1.266	1.187	1.000008
SE		6.15	87.491	1.101	0.248	1.737	1.000002
	27	43.25	572.393	12.500	1.476	1.763	1.000008
	28	21.49	305.566	13.393	2.259	1.480	1.000016
	29	3.15	44.779	37.500	18.750	1.169	1.000004
	30	62.22	884.873	8.152	1.674	1.677	1.000015
	31	45.62	648.810	8.929	1.349	1.808	1.000009
	32	32.72	465.313	13.393	2.976	1.371	1.000009
	33	6.74	95.886	23.438	6.748	1.179	1.000006
	34	39.53	562.172	12.500	2.467	1.464	1.000012
	35	46.71	664.385	9.868	1.563	1.659	1.000012
	36	14.31	203.453	23.438	2.885	1.400	1.000005
	37	8.25	117.372	37.500	7.523	1.125	1.000006
	38	29.36	417.614	15.625	2.585	1.376	1.000010
	39	16.43	233.630	10.417	2.500	1.491	1.000005
	40	8.76	124.633	16.875	11.029	1.115	1.000018
	41	26.90	382.569	17.045	3.125	1.363	1.000014
	42	0.99	14.115	93.750	31.250	1.037	1.000004
	43	16.80	238.984	20.833	4.934	1.227	1.000012
	44	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
	45	1.47	20.929	62.500	23.438	1.053	1.000012
	46	0.00	1.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
	47	2.43	34.558	62.500	17.145	1.069	1.000005
	48	2.46	35.044	37.500	14.423	1.085	1.000013
	49	1.64	23.363	16.875	16.875	1.137	1.000003
	50	50.99	725.226	12.500	2.841	1.421	1.000019
			AVERAGE				
		NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
		40.16	569.736	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.464	\$\$\$\$\$\$\$\$\$
SD		32.45	461.530	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.268	\$\$\$\$\$\$\$\$\$
SE		4.59	65.270	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.338	\$\$\$\$\$\$\$\$\$

DATE 1/23/79
 MOBILE TYCO SAMPLE # 57 JPL # 144-3C #5-743 SPEC C
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.17 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 3.375000 UNITS/PP
 FRAME AREA- 3.51562500 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	109.28	0.023	1488.095	359.195	0.003	7.945313
2	2527.85	0.072	26.986	24.993	0.068	2.238524
3	1911.99	0.054	35.244	32.095	0.052	2.093491
4	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
5	53.19	0.002	1233.553	1157.407	1.002	1.333513
6	500.39	0.014	150.240	160.806	0.011	2.432046
7	1271.57	0.036	70.755	69.547	0.026	2.243753
8	65.76	0.002	1053.371	937.503	0.001	1.770833
9	1048.94	0.030	64.744	67.198	0.033	1.864571
10	3347.78	0.095	22.237	27.647	0.077	2.194144
11	2174.66	0.062	34.851	36.253	0.054	2.728884
12	375.44	0.011	181.686	137.061	0.012	1.931977
13	1138.30	0.032	63.516	58.962	0.030	2.344414
14	279.33	0.018	400.641	109.382	0.017	2.831368
15	1278.34	0.036	47.396	42.325	0.040	1.689801
16	1011.03	0.029	55.645	52.141	0.035	1.481949
17	192.17	0.005	575.153	196.954	0.016	2.585938
18	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
19	12.19	0.000	2604.167	3976.250	0.000	1.885938
20	72.73	0.002	629.195	637.755	0.003	1.961364
21	540.43	0.015	151.699	119.275	0.015	2.471108
22	159.38	0.005	290.248	303.401	0.006	1.147277
23	1224.95	0.035	18.854	51.483	0.035	1.972945
24	3935.83	0.111	18.716	19.605	0.097	2.063258
25	35.59	0.011	1838.235	1399.254	0.031	2.587531

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
929.48	0.026	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.024	\$\$\$\$\$\$\$\$\$
SD 1070.68	0.030	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.026	\$\$\$\$\$\$\$\$\$
SE 214.14	0.006	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.005	\$\$\$\$\$\$\$\$\$

26	1153.58	0.033	32.161	34.317	0.029	1.039266
27	948.94	0.027	76.158	80.473	0.026	1.977939
28	872.53	0.025	62.667	64.037	0.028	2.412713
29	5546.23	0.158	13.044	14.094	0.126	2.089871
30	910.83	0.026	59.562	48.879	0.032	1.445858
31	1591.68	0.045	40.357	32.095	0.045	1.887770
32	996.32	0.028	63.176	61.398	0.032	1.417533
33	1819.54	0.052	19.837	21.909	0.059	1.188553
34	3475.24	0.099	18.232	18.791	0.096	2.086383
35	1686.65	0.048	38.724	39.540	0.045	2.335714
36	589.75	0.017	71.674	74.940	0.024	0.976481
37	2464.60	0.070	27.364	27.517	0.062	2.447874
38	1943.33	0.055	33.711	31.834	0.059	1.938079
39	1575.63	0.045	34.128	37.129	0.049	1.513251
40	1430.56	0.041	34.748	31.780	0.062	1.507337
41	564.41	0.016	94.411	65.514	0.019	2.856668
42	1298.45	0.037	44.305	37.925	0.049	1.154353
43	2380.27	0.068	36.394	35.121	0.071	1.751551
44	1078.53	0.031	51.767	54.443	0.037	2.952764
45	2454.93	0.070	24.478	25.748	0.069	1.824962
46	1577.76	0.045	32.305	35.592	0.054	1.392085
47	1533.27	0.044	38.900	29.444	0.048	1.168485
48	3204.76	0.091	23.582	22.343	0.082	2.978840
49	1946.62	0.055	39.130	39.555	0.041	1.715455
50	2556.87	0.073	28.731	29.115	0.058	2.882949

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1376.75	0.039	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.039	\$\$\$\$\$\$\$\$\$
SD 1156.27	0.033	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.029	\$\$\$\$\$\$\$\$\$
SE 163.52	0.005	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.004	\$\$\$\$\$\$\$\$\$

DATE 1/22/79
 MOBIL TYCO SAMPLE # 58 JPL#144-30 #5-743 SPEC D
 TWINS ONLY
 QTM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 29.86 X 100

MAG-800.0 UNITS-MM CAL. FACTOR- 3.100375 UNITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1	27.70	193.897	6.250	2.841	0.435	1.000000
2	14.33	203.855	31.250	5.208	0.208	1.000000
3	33.99	483.441	26.786	4.167	0.256	1.000000
4	27.46	390.563	17.045	3.137	0.517	0.000000
5	28.94	411.520	17.045	2.315	0.461	0.000000
6	28.30	402.471	15.625	6.466	0.195	0.000000
7	36.57	520.116	14.423	2.232	0.483	1.000000
8	35.60	536.303	18.750	8.500	0.432	0.000000
9	6.66	94.783	37.500	8.152	0.144	0.000000
10	58.54	832.567	14.423	3.348	0.288	0.000000
11	102.44	1456.992	11.429	1.803	0.611	1.000000
12	112.26	1596.547	9.375	0.992	1.375	1.000000
13	71.57	1317.846	9.868	1.311	0.840	1.000000
14	50.87	723.495	9.375	2.679	0.341	1.000000
15	37.84	538.215	15.625	2.316	0.523	1.000000
16	129.57	1842.792	12.500	1.953	0.557	1.000000
17	50.98	867.336	9.868	1.576	0.681	1.000000
18	69.22	984.505	8.929	1.742	1.018	0.000000
19	55.79	793.510	11.719	1.530	0.709	0.000000
20	92.20	1311.245	9.375	2.083	0.509	0.000000
21	91.76	1305.053	11.719	1.995	0.536	1.000000
22	136.64	1943.291	14.423	4.261	0.296	0.000000
23	68.12	968.788	9.868	1.349	0.768	0.000000
24	46.38	659.671	14.423	2.467	0.485	0.000000
25	37.88	538.692	14.423	3.989	0.379	1.000000

	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
	58.46	831.500	14.465	2.814	0.509	0.000000
SD	34.42	489.461	7.112	1.700	0.234	1.000000
SE	6.88	97.892	1.422	0.343	1.047	1.000000

	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
26	37.88	0.000	14.423	3.989	0.000	1.000000
LAST FIELD DELETED						
26	72.00	0.000	7.813	1.720	0.000	0.000000
27	78.27	0.000	9.375	1.689	0.000	1.000000
28	49.70	0.000	12.500	1.769	0.000	0.000000
29	54.49	0.000	13.393	3.074	0.000	0.000000
30	88.48	0.000	11.729	1.875	0.000	1.000000
31	44.31	0.000	11.729	1.913	0.000	0.000000
32	36.27	0.000	14.423	3.750	0.000	1.000000
33	47.15	0.000	10.417	1.820	0.000	0.000000
34	82.25	0.000	8.929	1.234	0.000	1.000000
35	70.19	0.000	8.523	1.157	0.000	0.000000
36	38.95	0.000	8.929	1.856	0.000	0.000000
37	42.33	0.000	6.944	2.799	0.000	0.000000
38	9.44	0.000	15.625	6.250	0.000	1.000000
39	31.88	0.000	9.868	2.679	0.000	0.000000
40	60.62	0.000	6.944	1.111	0.000	1.000000
41	32.95	0.000	12.500	2.534	0.000	1.000000
42	95.71	0.000	11.719	1.735	0.000	0.000000
43	93.64	0.000	7.500	1.330	0.000	0.000000
44	63.46	0.000	7.813	1.524	0.000	0.000000
45	61.45	0.000	7.813	1.803	0.000	1.000000
46	142.77	0.000	13.793	2.799	0.000	0.000000
47	113.75	0.000	11.719	2.259	0.000	0.000000
48	125.49	0.000	11.729	2.641	0.000	1.000000
49	39.58	0.000	10.417	2.155	0.000	0.000000
50	47.19	0.000	11.719	2.206	0.000	0.000000

	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
	61.62	0.000	12.660	2.524	0.000	1.000000
SD	32.89	0.000	5.737	1.434	0.000	1.000000
SE	4.65	0.000	0.811	1.203	0.000	1.000000

DATE 1/23/79
 MOBIL TYCO SAMPLE # 58 JPL #144-3C #5-743 SPEC D
 DISLOCATION PITS ONLY
 .11 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.35 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	2968.22	0.084	25.734	26.356	1.067	3.425038
2	839.07	1.024	83.631	84.842	1.023	3.393931
3	1046.54	0.030	53.116	46.595	1.036	1.288641
4	278.69	1.008	150.482	175.562	1.010	1.600549
5	350.09	0.010	146.484	148.104	1.038	1.423733
6	1393.28	1.040	50.485	44.410	1.035	2.197413
7	917.01	1.026	75.360	51.853	1.023	1.764466
8	762.43	0.122	66.208	65.651	1.026	1.359264
9	2766.73	1.079	23.573	25.114	1.062	3.393116
10	2594.02	0.074	30.867	31.997	1.055	3.763296
11	200.00	0.006	274.927	250.000	1.007	1.433036
12	51.21	0.001	1090.116	1266.892	1.002	1.926563
13	148.41	1.004	422.297	366.211	1.005	1.958882
14	1157.57	1.033	59.260	77.288	1.027	2.721533
15	658.88	0.019	75.544	78.981	1.022	1.412263
16	6.54	1.000	11718.750	13416.667	1.000	5.555555555
17	270.65	1.008	166.223	177.994	1.011	1.190789
18	435.33	0.012	112.410	110.035	1.015	1.423921
19	1565.61	1.045	219.342	58.630	1.022	25.605978
20	1406.54	0.140	54.761	58.630	1.034	2.734375
21	567.85	0.016	143.349	106.172	1.017	1.865584
22	63.18	0.002	694.444	738.189	0.002	1.033288
23	159.25	1.005	340.909	152.444	1.005	1.641267
24	3497.23	0.009	25.455	28.752	1.064	4.698382
25	1947.48	0.055	43.123	36.794	1.047	3.547632

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1041.95	1.033	645.830	592.934	1.025	5.555555555
SD 986.16	1.028	2272.748	2023.246	0.024	5.555555555
SE 197.23	1.006	454.550	404.649	0.004	5.555555555

26	317.20	0.009	192.505	185.644	1.009	1.729283
27	871.03	0.025	130.571	64.300	1.022	3.627511
28	581.87	1.017	102.415	79.114	1.015	2.392162
29	418.88	0.012	128.655	98.788	1.014	1.667411
30	1913.64	0.054	36.736	39.741	1.045	2.666146
31	76.82	1.002	1102.941	608.766	1.003	1.992996
32	1887.10	1.054	33.011	33.518	1.054	2.147882
33	1264.86	0.036	43.081	47.759	1.048	1.986652
34	562.06	0.016	116.460	116.604	1.017	1.922088
35	101.50	0.003	151.124	498.573	0.003	1.497243
36	401.68	0.011	127.551	139.717	1.013	1.533498
37	2704.86	0.077	27.229	27.135	1.067	2.818538
38	10088.60	0.287	12.439	11.454	0.148	6.140853
39	3672.71	0.104	31.542	15.163	1.102	2.816457
40	1615.70	1.046	38.234	39.045	0.045	1.878767
41	2094.95	1.060	34.411	31.631	0.045	4.477528
42	1020.56	1.029	97.251	47.807	1.024	2.886513
43	550.24	1.016	95.957	98.471	1.018	1.726758
44	51.87	0.002	1201.923	1284.247	1.002	2.449836
45	219.63	1.006	262.605	260.417	1.006	1.757813
46	542.80	0.015	92.092	99.840	1.019	1.427885
47	2081.12	0.059	29.260	29.490	0.059	2.354749
48	155.33	1.004	943.407	330.106	1.005	1.517654
49	145.98	0.004	356.464	287.577	0.006	1.220313
50	82.62	0.002	558.036	684.307	1.003	1.294922

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1189.56	1.034	434.579	399.672	1.028	5.555555555
SD 1593.98	1.045	1635.144	1457.780	1.028	5.555555555
SE 225.42	0.006	231.244	206.161	0.004	5.555555555

DATE 1/23/79
 MOBIL TYCO #59 JPL#144-30 #5-743 SPEC E
 TWINS ONLY QTM OUTPUT DIVIDED BY 100
 .01 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 23.39 X 100

MAG-870.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 1.070313

FIELD NO.	NO./AREA	MPV	MFPH	L/A	AFETA
1	65.58 932.744	8.929	1.550	3.723	1.000010
2	17.61 250.515	10.833	3.696	1.197	1.000012
3	111.42 1584.571	12.500	1.550	1.693	1.000020
5	67.64 961.931	11.029	1.524	3.699	1.000011
6	93.68 1289.668	9.868	1.420	3.768	1.000014
7	58.87 837.281	14.423	1.820	1.592	1.000013
8	57.76 821.472	8.523	1.299	1.843	1.000019
9	96.11 1366.693	10.417	1.856	1.547	1.000029
10	43.61 620.208	14.423	1.856	3.613	1.000008
11	63.92 909.030	8.929	1.720	1.635	1.000013
12	91.71 1304.261	7.212	1.576	3.721	1.000017
13	13.98 198.831	14.423	5.357	1.245	1.000018
14	165.71 2356.791	9.375	1.689	1.715	1.000042
15	117.49 1670.913	12.500	2.757	1.389	1.000048
16	112.36 1597.948	11.029	1.258	1.787	1.000018
17	109.28 1554.168	10.417	1.488	1.755	1.000020
18	85.34 1213.662	13.393	3.885	1.389	1.000028
19	97.73 1389.996	10.417	1.302	1.811	1.000015
20	123.35 1707.396	8.523	1.719	1.396	1.000014
21	88.29 1255.617	8.523	1.420	1.763	1.000015
22	82.17 1168.667	13.393	2.287	1.461	1.000021
23	132.79 1888.594	8.929	1.258	1.845	1.000024
24	19.24 273.621	12.500	2.206	1.515	1.000014
25	99.53 1415.534	11.029	1.399	1.773	1.000017

AVERAGE

	NO.	NO./AREA	MPV	MFPH	L/A	AFETA
	87.06	1238.179	11.303	2.328	1.654	1.000019
SD	39.30	558.870	2.617	1.272	1.198	1.000011
SE	7.86	111.774	3.563	1.254	1.340	1.000002

26	5.79	72.358	37.500	12.500	1.399	1.000006
27	41.64	592.238	8.929	3.024	1.387	1.000011
28	97.35	1384.523	9.868	1.123	1.949	1.000014
29	63.15	898.086	11.719	7.500	1.192	1.000069
30	40.96	582.509	6.148	3.289	1.403	1.000012
31	93.55	1287.844	10.417	3.472	1.277	1.000043
32	36.17	514.408	12.500	1.769	1.597	1.000017
33	19.54	277.878	10.417	4.261	3.283	1.000006
34	25.27	359.356	14.423	4.464	1.269	1.000019
35	25.87	367.669	8.523	1.995	1.589	1.000005
36	35.87	513.152	9.375	1.736	1.621	1.000006
37	12.01	173.861	10.833	4.573	3.292	1.000017
38	0.00	1.000	1.000	1.000	1.000	1.000000
39	0.00	0.000	1.000	1.000	1.000	1.000000
40	7.99	113.705	37.500	17.345	3.083	1.000004
41	3.46	49.252	31.250	18.750	3.083	1.000011
42	12.23	173.901	46.875	8.152	1.144	1.000017
43	0.00	0.000	1.000	1.000	1.000	1.000000
44	2.39	34.151	31.250	26.786	1.359	1.000013
45	5.47	77.830	46.875	5.682	1.189	1.000004
46	38.69	550.283	18.750	4.076	2.283	1.000016
47	4.19	59.589	62.500	11.029	1.107	1.000013
48	3.82	43.131	37.500	18.750	3.067	1.000011
49	10.01	284.566	15.625	2.259	1.164	1.000014
50	44.46	632.369	9.868	1.720	1.619	1.000018

AVERAGE

	NO.	NO./AREA	MPV	MFPH	L/A	AFETA
	56.23	799.764	1.000	1.000	1.467	1.000000
SD	15.53	647.597	1.000	1.000	1.289	1.000000
SE	6.4	91.084	1.000	1.000	1.141	1.000000

DATE 1/23/79
 MOBIL TYCO #59 JPL#144-3C #5-743 SPEC E
 DISLOCATIONS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT ARE = 4.78PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375333 UNITS/PP
 FRAME AREA- 3.515625000 14

FIELD NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
1	2332.39	0.065	54.397	31.175	1.342	5.974662
2	3631.38	0.133	22.477	23.863	0.976	3.211821
3	658.58	0.019	114.893	47.883	0.014	2.138236
4	6.49	0.000	55555555	55555555	1.000	5555555555
5	424.90	0.112	148.574	142.477	1.012	11.527323
6	15.06	0.000	2840.939	3024.194	1.001	3.843750
7	192.35	0.005	310.430	344.669	1.006	1.613672
8	437.87	0.012	200.321	220.070	1.008	2.452734
9	54.39	0.002	844.595	860.092	1.002	1.891768
10	3262.76	0.093	28.714	29.602	1.059	3.613159
11	1193.51	0.034	57.344	49.629	1.031	2.116796
12	347.49	0.013	179.942	174.581	1.039	1.769531
13	6471.97	0.184	13.294	13.007	1.126	3.613268
14	79.71	0.002	715.649	726.744	1.103	1.197625
15	2961.92	0.084	46.712	32.703	1.348	6.653758
16	149.58	0.004	384.221	369.194	1.005	1.155711
17	165.69	0.005	430.046	316.723	0.004	1.747234
18	731.59	0.021	51.806	53.197	1.022	1.485697
19	163.18	0.005	2840.939	464.179	1.003	10.968750
20	12.97	0.000	4687.500	5208.333	0.000	1.245536
21	2429.58	0.069	49.264	38.344	1.045	3.925662
22	2333.35	0.066	29.943	30.971	1.056	2.187678
23	121.55	0.003	584.307	420.404	1.003	2.475852
24	13.81	0.000	3232.759	3753.000	1.001	1.928125
25	1592.68	0.045	42.828	31.737	1.044	1.820711

AVERAGE						
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
SD	1188.96	0.134	55555555	55555555	1.025	5555555555
SE	1564.86	0.145	55555555	55555555	1.037	5555555555
SE	312.97	0.009	55555555	55555555	1.006	5555555555

26	67.78	0.002	660.211	684.307	1.003	1.893382
27	1397.70	0.140	36.141	37.757	1.049	1.139584
28	1204.81	0.034	65.597	55.837	1.028	2.142485
29	143.93	0.004	382.653	42.249	1.019	1.151786
30	1651.46	0.147	36.295	42.965	1.048	3.163925
31	2652.51	0.175	37.158	22.821	1.062	3.409148
32	1631.38	0.046	38.596	41.482	1.046	1.743392
33	5162.34	0.147	19.568	15.214	1.137	3.645024
34	699.58	0.020	114.193	85.852	1.019	1.767857
35	2043.51	0.058	49.368	50.187	1.036	5.583841
36	2176.36	0.062	31.135	26.042	0.062	1.861224
37	2159.62	0.061	31.747	28.784	0.056	2.021827
38	2937.53	0.083	24.119	22.722	0.073	2.048644
39	3178.87	0.093	20.789	23.746	0.079	2.115643
40	3174.06	0.091	19.393	21.365	0.087	1.777969
41	1375.10	0.039	47.134	42.594	0.039	1.702262
42	2518.20	0.072	42.945	39.979	0.041	3.236526
43	985.36	0.028	65.240	44.845	0.027	1.804751
44	1887.45	0.054	31.823	36.535	0.052	1.754798
45	1234.10	0.035	52.835	71.729	1.026	2.223986
46	415.49	0.012	179.598	136.662	1.014	1.169129
47	603.35	0.017	127.033	119.275	1.014	2.048295
48	1351.05	0.038	55.441	46.411	0.035	1.928145
49	4412.13	0.126	18.095	19.039	1.004	3.351165
50	1843.51	0.052	34.416	35.646	0.051	1.752747

AVERAGE						
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
SD	1532.33	0.044	55555555	55555555	1.036	5555555555
SD	1441.70	0.041	55555555	55555555	1.030	5555555555
SE	203.89	0.006	55555555	55555555	1.004	5555555555

DATE 1/23/79
 MOBIL TYCO # 63 JPL #144-33 #5-743 SPEC F
 TWINS ONLY
 QTM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 33.25 X 100

MAG-800.3 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP
 FRAME AREA- 3.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1 31.52	448.267	0.179	1.177	2.797	1.000000
LAST FIELD DELETED					
1 32.78	466.232	14.423	1.589	1.669	1.000009
2 31.25	444.418	14.423	1.465	1.717	1.000007
3 34.29	1340.952	9.375	1.563	1.739	1.000024
4 65.02	924.765	11.029	1.442	0.747	1.000017
5 36.78	523.121	7.813	1.512	0.776	1.000008
6 79.79	1134.784	7.212	1.371	1.003	1.000016
7 44.18	628.344	3.523	2.131	0.557	1.000016
8 50.32	715.602	15.625	1.933	1.509	1.000020
9 10.26	145.858	17.045	2.976	0.368	1.000005
10 18.35	260.919	11.719	6.250	0.227	1.000017
11 0.00	0.000	0.000	0.000	0.000	0.000000
12 2.68	38.069	62.500	12.500	0.769	1.000004
13 17.59	819.114	14.423	1.488	0.794	1.000014
14 74.02	1052.658	10.417	1.378	1.013	0.000012
15 103.07	1465.851	8.152	1.030	1.027	1.000019
16 57.02	810.987	8.929	1.096	0.965	1.000011
17 18.11	257.497	20.833	2.976	1.360	1.000008
18 17.41	247.659	11.029	2.155	0.515	1.000006
19 14.29	233.175	15.625	3.076	0.285	1.000010
20 26.71	379.830	13.393	0.573	0.264	1.000021
21 51.10	726.723	17.045	2.885	0.400	1.000027
22 127.13	1877.612	13.393	2.016	0.555	0.000059
23 22.77	323.796	17.045	2.155	0.477	0.000038
24 2.83	40.207	17.500	11.029	0.137	1.000004
25 61.02	867.876	14.423	1.563	0.712	1.000014
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
43.95	625.142	0.000	0.000	0.551	0.000000
SD 32.72	465.372	0.000	0.000	0.291	0.000000
SE 6.54	93.074	0.000	0.000	0.058	0.000000
26 17.86	254.075	23.038	2.757	1.408	1.000008
27 60.69	863.171	13.393	1.133	0.944	1.000010
28 87.83	538.092	14.423	1.933	0.547	1.000011
29 13.53	192.481	26.786	2.885	0.376	1.000006
30 32.75	465.805	17.045	2.287	0.459	1.000013
31 38.77	551.352	15.625	2.155	0.501	1.000013
32 18.38	261.347	26.786	3.989	0.275	1.000012
33 1.50	21.387	187.500	31.250	0.037	1.000007
34 5.18	72.287	17.500	6.466	0.173	1.000005
35 13.95	198.470	13.393	0.074	0.360	1.000007
36 60.33	858.038	11.029	1.813	0.557	1.000019
37 109.95	1563.893	9.375	2.016	0.552	1.000007
38 94.71	1346.941	8.523	1.875	0.635	1.000004
39 14.77	210.018	23.038	2.679	0.395	1.000006
40 24.79	342.617	15.625	5.357	0.205	1.000019
41 29.71	422.603	14.423	3.750	0.301	0.000017
42 20.60	292.999	20.833	3.124	0.360	1.000011
43 13.29	197.614	18.750	3.750	0.296	1.000008
44 104.96	1492.799	11.719	1.974	0.547	1.000033
45 61.17	873.015	13.393	1.820	0.597	1.000024
46 91.13	1296.140	8.523	2.131	0.528	1.000036
47 38.35	541.386	8.152	1.645	0.620	1.000010
48 25.02	368.738	7.500	1.234	0.869	1.000035
49 87.73	1247.278	9.868	1.213	0.547	1.000027
50 42.38	632.689	11.719	1.537	0.683	1.000010
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
43.17	613.955	0.000	0.000	0.512	0.000000
SD 32.34	459.966	0.000	0.000	0.254	0.000000
SE 4.57	65.049	0.000	0.000	0.036	0.000000

DATE 1/23/79
 MOBIL TYCO #60 JPL #144-30 75-743 JPEC F
 DISLOCATIONS/ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.35 PP

MAG-800.3 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.51562500 34

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	1711.03	0.749	36.211	36.822	3.150	2.167147
2	851.78	1.024	72.227	58.158	0.028	1.775147
3	859.25	0.024	38.194	74.127	1.020	2.938423
4	471.96	0.013	109.778	125.502	0.015	1.606688
5	995.79	1.028	57.165	59.486	1.031	1.710295
6	293.08	0.108	157.035	184.547	1.011	1.500000
7	1546.54	1.044	44.355	40.975	1.042	2.537610
8	2395.79	0.068	26.963	128.784	1.062	2.455573
9	3277.38	0.093	19.783	20.954	0.086	2.394228
10	4166.36	0.119	23.663	22.258	1.083	4.999252
11	5499.44	1.156	19.635	22.311	1.083	8.784435
12	5755.98	0.164	11.555	12.234	1.143	3.765724
13	6376.26	0.181	13.685	11.863	0.155	3.210938
14	331.87	0.039	625.010	156.511	1.103	5.161577
15	32.15	0.001	1442.308	252.273	1.001	1.863577
16	227.99	0.001	2038.343	660.211	0.001	2.470982
17	633.38	0.018	86.645	92.730	0.020	1.701060
18	4454.58	0.127	17.936	19.845	1.091	3.994487
19	2668.97	0.075	24.769	27.253	0.067	2.604390
20	2223.17	0.063	24.697	25.482	1.071	1.745543
21	4253.47	0.121	15.217	15.825	1.113	2.591420
22	1275.33	0.036	140.939	41.028	1.043	1.492230
23	1.00	0.000	55555555	55555555	1.000	5555555555
24	2222.80	0.063	32.529	30.657	1.059	2.368715
25	4502.06	0.128	19.831	16.424	1.108	2.897012

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
2271.81	1.165	55555555	55555555	1.055	5555555555
SD 1942.52	1.355	55555555	55555555	1.043	5555555555
SE 388.50	1.011	55555555	55555555	1.109	5555555555

26	113.64	0.003	452.899	480.769	1.004	1.379332
27	1916.07	0.055	36.380	34.851	1.050	2.200835
28	388.04	0.011	436.047	100.606	1.011	7.120427
29	1023.74	1.029	55.638	59.298	1.031	1.883137
30	1440.93	0.041	45.665	43.645	1.039	2.185641
31	1806.73	0.051	31.513	34.179	1.053	1.928059
32	736.82	0.021	92.822	62.375	1.020	1.737755
33	2431.21	0.069	24.248	26.566	1.067	2.159515
34	6221.31	0.177	14.546	17.211	0.106	6.513030
35	4644.67	1.132	16.540	17.297	1.100	2.470130
36	613.27	1.117	159.168	97.150	1.017	2.762818
37	260.93	1.007	185.277	191.718	1.009	1.344616
38	758.50	0.022	137.665	81.239	0.018	4.565250
39	424.11	0.012	130.571	129.489	0.014	1.627950
40	1345.98	0.038	49.032	53.510	1.034	2.333273
41	5193.46	0.148	14.104	14.635	0.122	3.130822
42	716.07	0.020	79.449	58.777	0.026	1.766342
43	1956.64	0.056	43.725	41.759	0.044	3.391849
44	2156.45	0.061	30.829	31.834	0.055	2.389382
45	14.95	0.000	1704.545	2604.167	1.001	1.322727
46	486.54	0.014	168.312	107.511	1.015	2.178853
47	597.57	0.017	148.339	54.522	0.023	2.845431
48	468.50	0.013	104.515	103.122	0.017	1.199139
49	1432.71	0.041	51.840	31.012	1.043	3.198489
50	314.39	1.039	157.828	152.936	1.012	1.343928

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1885.17	1.094	55555555	55555555	1.046	5555555555
SD 1814.18	1.052	55555555	55555555	0.939	5555555555
SE 256.56	1.007	55555555	55555555	1.006	5555555555

DATE 1/27/79
 MOBIL TYCO #61 JPL #144-30 #5-743 SPEC G
 TWINS ONLY
 QTM OUTPUT DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 18.10 X100

MAG-800.0 UNITS-MM CAL. FACTOR- 0.000375 INITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	19.86	282.413	18.750	5.859	1.203	3.000016
2	109.93	1563.429	15.625	1.786	1.592	3.000027
3	74.18	1254.984	18.750	3.125	0.344	0.000032
4	52.93	752.762	20.833	2.534	0.408	0.000019
5	60.32	857.935	14.423	1.524	1.734	1.000013
6	48.96	696.381	11.029	1.589	1.669	1.000010
7	44.75	636.444	18.750	1.276	1.728	0.000027
8	75.43	1072.762	18.750	2.503	0.464	1.000025
9	79.71	1133.714	9.868	1.603	1.691	1.000018
10	64.03	910.222	12.500	1.769	1.584	0.000016
11	85.11	1210.413	8.152	1.431	1.736	1.000015
12	21.36	333.746	13.393	2.799	1.408	1.000027
13	56.93	839.651	14.423	1.284	1.787	1.000010
14	16.68	237.236	18.750	3.374	1.349	1.000017
15	128.89	1833.143	8.929	2.131	1.525	1.000042
16	124.82	1775.238	8.152	1.293	1.803	0.000027
17	56.71	838.603	9.868	1.465	1.744	1.000012
18	55.14	784.254	11.029	1.913	1.563	0.000014
19	3.86	54.857	12.533	17.345	0.369	1.000028
20	42.32	601.905	31.250	4.934	1.216	0.000028
21	125.64	1786.921	12.500	2.930	1.389	1.000062
22	109.61	1558.857	17.045	1.124	1.368	0.000054
23	46.61	662.857	15.625	1.769	1.561	1.000012
24	37.30	526.222	26.786	2.757	1.387	0.000013
25	5.39	76.698	46.875	5.682	1.189	1.000024
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	61.85	879.583	18.582	3.384	1.499	1.000023
SD	35.88	510.293	12.156	3.118	1.293	1.000014
SE	7.18	102.059	2.431	1.624	1.341	1.000003
26	36.32	516.571	9.868	1.689	1.672	1.000008
27	38.43	546.543	11.029	1.705	1.571	1.000029
28	73.96	1051.937	14.944	1.442	1.789	1.000024
29	55.96	1222.673	13.393	2.155	1.456	1.000026
30	83.36	901.079	9.868	1.356	0.568	1.000017
31	26.32	374.349	11.029	3.409	1.336	1.000013
32	41.54	590.730	12.500	3.906	1.285	1.000027
33	143.04	2034.286	8.152	2.373	1.517	1.000056
34	66.79	949.241	5.515	1.110	0.843	1.000015
35	107.14	1523.810	9.868	1.674	0.744	1.000025
36	25.79	366.730	12.500	1.289	1.341	1.000011
37	20.54	292.063	10.417	1.686	1.349	0.000028
38	53.57	719.238	2.523	1.176	1.712	1.000010
39	21.09	311.065	15.625	3.068	1.243	1.000017
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	63.23	856.173	15.636	2.378	1.509	1.000023
SD	35.48	504.541	10.610	2.596	1.198	1.000014
SE	5.68	80.791	1.699	1.416	0.332	1.000002
40	32.14	457.143	9.868	2.568	1.443	0.000016
41	11.43	162.540	23.438	3.233	1.341	1.000035
42	29.37	413.463	17.345	2.259	1.469	1.000029
43	56.37	797.460	8.152	1.488	0.728	1.000011
44	133.11	1893.179	10.417	1.576	0.731	1.000031
45	179.96	1563.937	8.523	1.267	1.867	1.000021
46	77.64	1104.254	10.417	1.537	1.715	1.000019
47	64.39	915.713	12.500	1.630	0.635	1.000015
48	80.59	1144.889	6.696	1.500	0.723	1.000016
49	19.14	272.254	15.625	2.717	1.389	0.000027
50	31.79	452.063	8.929	1.838	1.555	1.000027
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	59.96	851.352	14.828	2.677	1.528	1.000018
SD	35.85	509.811	9.746	2.341	1.194	1.000013
SE	5.37	72.198	1.378	1.231	1.327	1.000002

DATE 1/23/79
 MOBIL TYCO SAMPLE #61 JPL #144-30 #5-743 SPEC G
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE DISLOCATION PIT AREA = 5.45 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 0.375000 UNITS/PP
 FRAME AREA- 3.515625000 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	4801.47	0.137	20.292	22.547	1.079	7.076683
2	39.72	0.001	1399.254	976.563	1.001	3.949219
3	2471.93	1.071	28.212	30.448	0.057	3.147317
4	9.36	0.001	1129.518	1143.293	1.001	1.719463
5	1058.17	1.039	93.750	52.936	0.025	3.754557
6	359.82	0.010	144.676	164.474	0.012	1.641462
7	423.85	0.012	339.674	101.133	0.012	4.111946
8	296.70	0.108	177.221	187.876	0.111	1.977317
9	717.80	0.020	179.778	79.517	0.020	2.507568
10	171.56	0.005	339.674	264.831	1.109	1.528888
11	788.26	0.022	57.873	66.021	0.025	1.814189
12	3473.21	0.399	23.314	21.137	0.082	2.984182
13	199.38	1.106	258.264	216.014	1.007	1.230469
14	1644.95	0.047	39.128	39.275	0.047	2.275637
15	0.10	0.000	SSSSSSSSSS	SSSSSSSSSS	1.109	SSSSSSSSSSSS
16	301.47	0.009	1250.100	781.250	0.002	14.440437
17	504.77	0.014	148.574	167.411	0.012	2.373370
18	213.76	0.006	266.335	284.091	0.007	2.127638
19	5330.09	0.152	16.750	17.494	0.099	4.788998
20	3599.82	0.102	19.290	20.235	0.088	3.005362
21	30.09	0.001	997.340	1157.407	1.001	1.823661
22	1399.45	0.040	53.251	63.430	0.028	4.554329
23	3115.60	0.189	26.027	27.064	1.069	4.307445
24	1117.98	0.132	61.922	66.489	0.026	2.818514
25	2405.14	0.068	24.057	25.524	0.071	1.963059

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1380.16	0.139	SSSSSSSSSS	SSSSSSSSSS	0.032	SSSSSSSSSSSS
SD	1542.71	0.044	SSSSSSSSSS	SSSSSSSSSS	0.031	SSSSSSSSSSSS
SE	308.54	0.109	SSSSSSSSSS	SSSSSSSSSS	0.006	SSSSSSSSSSSS

26	1234.31	0.035	53.297	57.230	0.034	2.290519
27	1136.88	0.132	58.081	111.607	0.124	3.607465
28	744.59	0.021	65.789	55.970	0.033	1.224584
29	414.31	0.012	186.382	132.796	0.015	1.984570
30	1337.25	0.138	51.681	38.756	0.040	2.166755
31	4473.39	0.127	16.762	17.685	0.098	3.627314
32	3131.47	0.088	22.158	23.211	0.178	2.641094
33	1264.59	0.036	64.389	49.788	0.033	2.692188
34	2404.40	0.068	35.674	19.816	0.166	2.848145
35	838.72	0.024	170.455	62.051	0.020	6.240746
36	1674.31	0.048	29.828	29.677	0.062	1.572553
37	1641.65	0.047	36.454	40.479	0.144	2.188125
38	990.83	0.028	52.083	53.146	0.034	1.524849
39	2906.97	0.183	23.861	22.661	0.031	2.123853
40	860.55	0.127	53.694	55.350	0.034	1.410291
41	1465.32	0.142	91.642	10.529	0.039	2.925576
42	013.21	0.026	118.671	59.790	0.025	1.910003
43	2089.72	0.059	47.423	25.615	0.153	3.407613
44	2857.43	0.081	30.627	23.579	0.173	2.912172
45	3031.19	0.186	23.420	17.533	0.092	2.262050
46	1443.12	0.041	67.690	44.201	0.032	3.787725
47	934.68	0.027	56.517	48.503	0.033	1.504924
48	95.63	0.023	436.147	424.208	0.004	1.077436
49	188.62	0.005	258.978	267.094	0.007	1.225106
50	259.63	0.007	316.723	205.592	0.010	1.233710

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1458.14	0.041	SSSSSSSSSS	SSSSSSSSSS	0.037	SSSSSSSSSSSS
SD	1322.72	0.038	SSSSSSSSSS	SSSSSSSSSS	0.029	SSSSSSSSSSSS
SE	187.06	0.005	SSSSSSSSSS	SSSSSSSSSS	0.004	SSSSSSSSSSSS

DATE 1/22/79
MOBIL TYCO SAMPLE #62 JPL #144-3C #5-743 SPEC 4
TWIN ONLY
JTM OUTPUT DIVIDED BY 100
0.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN AREA = 33.67 X 100

MAG-800.0 UNITS-MM CAL. FACTOR- 7.730375 UNITS/PP
FRAME AREA- 2.373313

FIELD	NO.	NO./AREA	MEPV	MEPH	L/A	AFETA
1	44.86	638.076	13.393	2.500	3.429	3.000016
2	122.29	1738.014	8.152	1.633	3.723	3.000041
3	40.43	575.010	10.503	1.838	3.547	3.000016
4	28.27	402.043	9.868	1.736	3.629	3.000007
5	53.15	755.860	9.175	1.130	3.944	3.000009
6	87.22	1240.445	13.417	1.997	3.059	3.000014
7	53.28	757.715	11.719	2.435	3.448	3.000019
8	11.67	166.711	15.625	8.929	3.144	3.000013
9	5.12	72.804	18.750	9.868	3.131	3.000007
10	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	3.000	SSSSSSSSSSSS
11	64.92	923.262	6.944	1.179	3.989	3.000013
12	13.04	142.825	23.438	9.868	3.128	3.000014
13	18.94	269.420	18.750	3.472	3.323	3.000010
14	83.96	1194.173	8.152	1.928	3.144	3.000012
15	70.69	1005.343	9.868	3.987	3.340	3.000011
16	14.31	203.572	15.625	2.467	3.419	3.000005
17	108.35	1536.763	13.393	3.315	3.491	3.000008
18	62.15	883.846	7.500	1.396	3.965	3.000011
19	27.78	395.087	13.417	1.153	3.912	3.000005
20	26.83	381.640	11.729	1.786	3.624	3.000006
21	3.62	51.473	37.500	11.719	3.101	3.000005
22	39.39	560.171	10.417	1.389	3.739	3.000009
23	71.03	1021.570	11.029	1.576	3.672	3.000019
24	73.98	1052.175	8.929	1.453	3.752	3.000025
25	6.91	98.338	23.438	8.929	3.131	3.000007
AVERAGE						
	NO.	NO./AREA	MEPV	MEPH	L/A	AFETA
SD	45.18	642.620	SSSSSSSSSS	SSSSSSSSSS	3.579	SSSSSSSSSSSS
SE	33.45	475.723	SSSSSSSSSS	SSSSSSSSSS	3.341	SSSSSSSSSSSS
	6.69	95.145	SSSSSSSSSS	SSSSSSSSSS	3.068	SSSSSSSSSSSS
26	86.50	1230.243	11.719	2.435	3.501	3.000041
27	73.85	1050.321	8.152	0.928	3.136	3.000010
28	18.58	264.319	18.750	3.476	3.283	3.000009
29	5.25	74.659	23.438	6.466	3.179	3.000005
30	4.70	66.775	26.786	9.868	3.129	3.000007
31	24.39	346.861	15.625	3.827	3.285	3.000018
32	15.03	213.774	18.750	3.472	3.312	3.000008
33	0.00	0.000	15.625	4.688	3.261	3.000000
34	71.14	1311.832	8.152	1.938	3.179	3.000013
35	31.12	1153.730	8.523	1.744	3.429	3.000009
36	18.17	327.272	9.868	1.284	3.819	3.000014
37	47.02	668.681	10.417	3.374	3.379	3.000025
38	12.36	175.749	23.833	3.348	3.125	3.000006
39	3.01	54.255	42.500	10.417	3.107	3.000005
40	29.12	414.130	11.729	1.399	3.789	3.000006
41	43.04	612.137	9.375	1.705	3.645	3.000012
42	77.47	1101.793	7.013	1.915	3.107	3.000012
43	101.79	1447.727	11.029	1.410	3.752	3.000026
44	76.62	1089.737	13.417	1.659	3.653	3.000018
45	46.56	662.189	6.696	1.109	3.952	3.000008
46	25.63	363.391	13.393	3.989	3.293	3.000016
47	27.36	384.886	9.375	1.974	3.557	3.000007
48	41.21	586.139	10.417	1.276	3.765	3.000008
49	29.51	419.665	9.375	3.155	3.539	3.000013
50	54.19	770.699	8.523	1.488	3.712	3.000013
AVERAGE						
	NO.	NO./AREA	MEPV	MEPH	L/A	AFETA
SD	33.67	621.122	SSSSSSSSSS	SSSSSSSSSS	3.591	SSSSSSSSSSSS
SE	11.37	446.139	SSSSSSSSSS	SSSSSSSSSS	3.348	SSSSSSSSSSSS
	4.44	63.389	SSSSSSSSSS	SSSSSSSSSS	3.349	SSSSSSSSSSSS

DATE 1/23/79
 MO3IL TYCU SAMPLE # 62 JPL #144-30 #5-743 SPEC H
 DISLOCATION PITS ONLY
 0.31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE DISLOCATION PIT AREA = 5.22 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.175000 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD NO.	NO./AREA	MPV	MPH	L/A	AFETA
1	34.87	0.001	1802.885	1704.545	1.163353
2	4447.77	1.127	23.228	20.843	5.552535
3	1613.98	1.146	33.104	35.933	1.569226
4	1484.29	0.242	66.348	66.869	4.375753
5	5.94	0.100	9375.000	8522.727	1.453125
6	2477.20	0.070	34.942	37.925	4.153280
7	7177.59	0.234	13.714	14.138	5.415702
8	8975.10	0.255	11.995	13.287	6.971726
9	8197.51	0.233	13.514	13.288	7.547707
10	626.82	0.018	78.125	73.185	1.246951
11	3389.85	1.096	20.127	20.795	2.549549
12	3979.31	0.113	16.353	17.679	2.598813
13	412.26	0.012	738.189	133.128	10.435345
14	239.08	0.007	219.555	201.613	1.379771
15	2335.63	1.066	22.439	29.715	2.891231
16	126.44	0.034	197.246	504.132	1.751179
17	1263.03	0.336	57.835	63.819	2.176386
18	785.06	0.022	86.645	49.708	2.352168
19	2253.17	1.064	26.356	26.521	1.873736
20	5763.98	1.164	13.385	14.140	3.242241
21	1775.86	1.051	34.416	26.493	1.883836
22	1374.71	0.131	52.374	55.638	1.689377
23	1061.11	0.030	55.510	56.306	2.039763
24	3872.61	0.110	23.682	21.966	3.424981
25	1439.23	0.340	51.824	53.388	3.051438

AVERAGE					
NO.	NO./AREA	MPV	MPH	L/A	AFETA
2591.29	0.374	531.148	471.405	1.354	3.309476
SD 517.73	1.072	1842.598	1677.283	1.343	2.254772
SE 533.55	1.014	368.520	335.457	1.009	1.450947

26	164.94	1.035	264.385	183.233	1.007	1.938597
27	1690.83	0.048	32.631	35.525	1.052	1.714304
28	659.96	1.133	16.965	17.135	1.100	3.615965
29	3600.30	0.132	21.234	21.292	1.183	3.195435
30	3001.53	0.085	20.912	22.744	1.083	1.266782
31	2479.89	0.171	30.428	33.542	1.054	3.144025
32	1725.86	0.136	11.986	13.772	1.081	3.590979
33	255.56	1.007	181.335	191.327	1.110	1.008569
34	332.76	1.109	382.653	473.185	1.008	3.440361
35	161.23	0.035	248.674	243.506	0.007	1.822266
36	2194.16	1.162	19.197	30.135	1.060	3.153952
37	1431.99	0.141	33.057	32.139	1.156	1.082566
38	2357.28	0.167	13.995	25.671	1.070	1.751478
39	1798.08	0.051	18.724	43.303	0.043	2.673365
40	2892.34	0.082	25.573	24.947	0.069	2.896537
41	192.91	0.008	194.502	142.477	0.012	1.264798
42	386.59	0.011	125.000	138.274	0.014	1.266821
43	506.70	0.014	171.077	101.024	0.014	2.296077
44	459.00	0.013	109.012	112.680	0.016	1.387891
45	4090.23	0.116	20.843	18.067	1.088	3.767233
46	2114.75	0.060	32.339	36.337	1.058	2.034547
47	1812.26	0.152	32.439	33.494	1.053	1.824846
48	569.73	0.116	88.694	96.949	1.019	1.226448
49	343.10	0.010	140.135	147.638	1.013	1.205069
50	3441.38	0.198	26.809	28.375	1.062	4.267239

AVERAGE					
NO.	NO./AREA	MPV	MPH	L/A	AFETA
2193.90	1.162	311.772	282.936	1.057	3.752018
SD 2071.90	1.059	1322.981	1203.282	1.037	1.237320
SE 293.01	1.138	187.198	173.177	0.045	1.259836

DATE 1/21/79

MOBILE TCCO SAMPLE #63 JPL # 5-647 MRR #1 spec. B.

TWINS ONLY

DTM JPLPT DATA DIVIDED BY 100

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE TWIN AREA = 29.13X100

MAG-800.0 UNITS-MM CAL. FACTOR-
FRAME AREA- 0.377313

1.333175 UNITS/PP

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	3.78	53.736	187.507	1.337	1.333115
2	32.11	428.181	11.329	1.725	1.333117
3	3.33	46.873	46.875	1.112	1.333115
4	3.33	47.359	46.875	1.423	1.333115
5	19.91	223.175	23.438	1.334	1.333119
6	25.44	361.781	20.833	1.371	1.333112
7	31.23	443.814	12.533	1.616	1.333117
8	8.58	122.358	21.833	1.357	1.333116
9	2.44	34.665	46.875	1.786	1.333115
10	18.64	265.113	11.329	1.573	1.333115
11	3.33	3.333	55555555	55555555	1.333
12	3.33	3.333	55555555	55555555	1.333
13	3.33	3.333	55555555	55555555	1.333
14	3.33	3.333	55555555	55555555	1.333
15	9.82	139.635	26.786	1.259	1.333118
16	26.78	383.822	17.345	1.833	1.333117
17	56.43	832.167	12.417	1.319	1.333119
18	26.98	383.751	23.438	1.676	1.333114
19	83.49	1187.382	7.813	1.423	1.333117
20	11.35	157.211	37.533	1.357	1.333119
21	3.33	3.333	55555555	55555555	1.333
22	21.25	332.216	18.753	2.634	1.333118
23	3.47	49.312	37.533	14.423	1.333117
24	12.47	148.911	37.533	8.929	1.333114
25	75.37	1378.995	9.868	1.425	1.333112
26	89.53	1272.823	8.152	1.318	1.333115
AVERAGE					
	NO.	NO./AREA	MFPV	MFPH	L/A
	21.61	337.305	55555555	55555555	1.333
SD	25.87	367.938	55555555	55555555	1.338
SE	5.07	72.159	55555555	55555555	1.366
27	118.98	1692.215	12.533	1.423	1.731
28	66.56	946.683	11.719	1.476	1.739
29	41.23	586.368	13.393	1.736	1.731
30	38.83	552.191	14.423	1.995	1.533
31	78.58	1117.565	7.533	1.378	1.333
32	29.11	414.321	15.625	2.885	1.381
33	41.13	584.933	11.719	1.488	1.333
34	16.99	241.675	31.253	1.324	1.344
35	47.58	676.691	12.533	1.974	1.549
36	7.65	138.876	46.875	6.466	1.163
37	25.95	369.134	9.375	2.363	1.523
38	5.38	72.258	93.753	8.929	1.130
39	1.82	25.876	187.507	18.753	1.356
40	14.38	234.574	23.833	4.261	1.267
41	5.42	77.141	37.533	8.929	1.125
42	7.21	132.529	23.438	7.813	1.163
43	136.49	1514.498	11.719	2.316	1.512
44	113.68	1574.363	8.152	1.242	1.872
45	62.72	892.311	6.696	1.399	1.784
46	2.71	38.573	62.533	17.345	1.359
47	3.33	3.333	55555555	55555555	1.333
48	1.99	28.318	187.507	31.253	1.335
49	14.86	211.435	24.786	4.167	1.259
50	3.47	49.312	93.753	23.833	1.456
AVERAGE					
	NO.	NO./AREA	MFPV	MFPH	L/A
	28.22	431.415	55555555	55555555	1.363
SD	32.12	456.827	55555555	55555555	1.323
SE	4.54	64.435	55555555	55555555	1.345

DATE 1/21/79

MOBIL TYCO SAMPLE # 631 JPL # 5-643 MRR#1 SPEC B

DISLOCATION PITS ONLY

.01 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE DISLOCATION PIT AREA = 5.76 μ^2

MAG-830.3 UNITS-MICRONS CAL. FACTOR-
FRAME AREA- 3.51565000 44

1.75333 UNITS/ μ^2

FIELD	NO.	NO./AREA	MPV	MPH	L/A	FETA
1	581.25	0.017	53.798	59.651	0.027	1.999632
2	457.35	0.013	93.376	94.231	0.020	1.988567
3	393.58	0.011	436.147	87.128	0.012	5.403337
4	548.96	0.016	78.715	82.381	0.022	1.137228
5	760.94	0.022	50.214	51.483	0.033	1.771929
6	233.83	0.007	837.054	209.263	0.002	4.436384
7	10.42	0.000	4074.187	3224.194	0.000	1.235357
8	132.38	0.003	837.354	345.941	0.004	2.431985
9	1104.17	0.031	41.734	45.911	0.047	1.585771
10	1544.79	0.044	33.488	35.923	0.055	1.581898
11	2022.35	0.058	23.138	26.832	0.073	1.596354
12	1413.89	0.043	35.878	41.797	0.047	1.932439
13	2612.33	0.074	18.483	23.953	0.091	1.744422
14	1998.39	0.057	25.876	28.136	0.064	1.983971
15	1311.63	0.029	52.287	55.441	0.034	1.871826
16	79.34	0.002	402.361	493.421	0.004	1.988732
17	3.33	0.000	555555555	555555555	0.000	55555555555
18	213.76	0.006	169.533	194.936	0.011	1.975536
19	87.58	0.002	589.623	603.962	0.003	1.389736
20	587.67	0.017	73.185	83.556	0.023	1.352317
21	1777.60	0.051	28.119	28.962	0.063	1.573185
22	261.11	0.007	161.360	188.253	0.011	1.149457
23	1768.75	0.053	27.696	31.657	0.061	1.626216
24	10267.53	0.292	13.457	11.112	0.156	1.845946
25	3.33	0.000	555555555	555555555	0.000	55555555555
26	3.33	0.000	555555555	555555555	0.000	55555555555
27	5.38	0.000	4687.503	4464.286	0.000	1.622768
28	191.84	0.005	187.397	228.192	0.006	2.718361

AVERAGE						
	NO.	NO./AREA	MPV	MPH	L/A	FETA
SD	1472.22	0.033	555555555	555555555	0.031	55555555555
SE	1919.84	0.055	555555555	555555555	0.035	55555555555
SE	362.82	0.013	555555555	555555555	0.007	55555555555

29	415.63	0.012	124.689	116.171	0.015	1.523331
30	162.85	0.005	474.195	225.361	0.007	1.939798
31	147.43	0.004	464.149	177.221	0.008	1.781953
32	774.65	0.022	54.253	56.442	0.033	1.169471
33	558.85	0.016	75.120	83.819	0.024	1.772682
34	333.69	0.009	137.665	152.687	0.012	1.159821
35	998.44	0.028	65.195	58.353	0.029	1.898693
36	932.12	0.027	72.383	71.568	0.035	1.463378
37	744.44	0.021	88.527	68.132	0.026	2.292776
38	67.31	0.002	41.938	571.446	0.003	1.889857
39	245.83	0.007	159.168	171.733	0.012	1.952751
40	464.93	0.013	85.009	92.365	0.023	1.763827
41	463.42	0.013	85.305	72.227	0.022	1.963663
42	1218.23	0.035	46.228	53.785	0.036	2.222445
43	9.38	0.000	3635.769	3635.769	0.000	1.265625
44	111.28	0.003	393.938	474.095	0.004	1.126758
45	425.35	0.012	132.415	146.256	0.013	1.327914
46	1155.33	0.033	43.736	47.613	0.038	1.223739
47	1233.16	0.035	45.007	47.883	0.037	1.924585
48	1925.69	0.055	33.116	33.351	0.054	1.569719
49	215.63	0.006	243.536	261.872	0.007	1.782217
50	428.99	0.012	99.843	113.225	0.017	1.232214

AVERAGE						
	NO.	NO./AREA	MPV	MPH	L/A	FETA
SD	863.36	0.024	555555555	555555555	0.026	55555555555
SD	1489.89	0.042	555555555	555555555	0.028	55555555555
SE	213.73	0.006	555555555	555555555	0.004	55555555555

DATE 1/21/79
 MOBIL TYGO SAMPLE # 64 JPL # 1-640 MRR#1 SPEC C
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 29.88X143

MAG-800.0 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PO
 FRAME AREA- 3.370113

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	6.46	86.152	62.500	7.813	0.139	3.000016
2	21.65	307.958	15.625	4.167	0.277	1.000017
3	54.69	777.748	8.929	2.467	0.459	3.000021
4	9.10	129.466	62.500	10.417	0.131	0.000019
5	1.57	22.371	93.750	23.438	0.351	3.000003
6	2.61	37.126	93.750	15.625	0.372	1.000005
7	19.85	282.255	13.417	6.696	0.205	1.000017
8	17.47	248.461	15.625	3.976	0.283	1.000009
9	101.61	1445.369	5.208	1.339	0.824	3.000022
10	64.66	919.589	8.929	1.339	0.819	1.000013
11	48.53	693.168	11.719	1.563	0.696	0.000011
12	65.26	928.157	17.745	1.689	0.627	1.000017
13	33.10	470.742	23.438	2.937	0.365	0.000014
14	1.14	16.183	SSSSSSSSSS	31.250	0.032	0.000005
15	15.26	217.046	17.500	4.261	1.237	1.000011
16	19.81	281.779	46.875	1.934	0.216	1.000017
17	11.28	163.475	0.833	1.464	0.251	0.000008
18	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
19	0.11	29.987	187.500	31.250	0.337	1.000009
20	6.36	93.436	93.750	15.625	0.075	0.000013
21	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
22	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
23	2.11	29.987	93.750	15.625	0.072	0.000004
24	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
25	0.13	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
20.17	286.840	SSSSSSSSSS	SSSSSSSSSS	0.235	SSSSSSSSSSSSSS
SD 26.18	172.342	SSSSSSSSSS	SSSSSSSSSS	0.254	SSSSSSSSSSSSSS
SE 5.24	74.468	SSSSSSSSSS	SSSSSSSSSS	0.151	SSSSSSSSSSSSSS

26	1.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
27	1.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSSSS
28	10.71	152.313	26.786	1.727	0.262	0.000006
29	8.00	113.759	26.786	9.152	0.117	0.000008
30	55.96	795.835	6.466	3.625	1.697	0.000005
31	32.56	453.127	17.500	7.813	0.162	0.000006
32	57.80	822.014	6.944	1.576	0.728	1.000013
33	51.54	733.106	8.929	1.849	0.895	0.000013
34	10.98	156.121	13.438	2.534	0.411	1.000004
35	14.93	212.286	11.750	1.538	0.336	1.000007
36	24.40	346.988	17.945	2.799	0.384	1.000009
37	15.43	219.426	26.786	1.289	0.309	1.000007
38	83.94	1193.753	0.523	1.096	0.971	1.000015
39	18.47	262.743	18.750	1.838	0.555	1.000005
40	28.11	399.622	14.423	1.276	0.797	0.000006
41	48.83	694.452	9.375	1.616	0.651	0.000014
42	13.54	149.933	23.438	2.435	0.427	0.000003
43	8.97	127.562	46.875	6.250	0.173	0.000006
44	56.06	797.263	9.375	1.576	0.707	1.000016
45	57.03	811.366	9.868	1.284	0.829	1.000013
46	120.72	1716.853	12.500	2.232	0.483	1.000056
47	19.14	272.259	17.500	26.786	0.343	1.000003
48	6.36	86.152	62.500	9.375	0.112	0.000008
49	3.92	55.689	62.500	14.423	0.377	1.000008
50	0.67	9.520	93.750	17.500	0.037	1.000003

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
24.98	355.267	SSSSSSSSSS	SSSSSSSSSS	0.339	SSSSSSSSSSSSSS
SD 28.21	401.202	SSSSSSSSSS	SSSSSSSSSS	0.342	SSSSSSSSSSSSSS
SE 3.99	56.739	SSSSSSSSSS	SSSSSSSSSS	0.342	SSSSSSSSSSSSSS

DATE 1/21/79

MOBIL TYCO SAMPLE # 64 JPL # 5-643 MRR#1 SPEC C
DISLOCATION PITS ONLY
.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
AVERAGE DISLOCATION PIT AREA = 4.93 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
FRAME AREA- 3.51562500 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	743.82	0.021	60.877	37.331	1.026	1.039651
2	783.06	0.022	85.773	22.891	0.022	1.810665
3	1216.58	0.036	49.788	50.295	0.037	1.905149
4	2008.16	0.057	39.933	36.127	0.051	2.210463
5	1561.63	0.044	32.344	37.473	0.047	1.716208
6	3640.82	0.104	16.039	17.476	0.106	1.866629
7	1543.47	0.044	41.722	49.058	0.036	2.636733
8	500.00	0.014	133.547	21.019	0.016	1.656400
9	181.22	0.005	337.233	357.824	0.006	1.469118
10	193.67	0.005	115.657	246.711	0.006	1.476253
11	736.73	0.020	83.112	67.160	0.022	1.498413
12	711.43	0.023	69.386	73.731	0.025	1.570775
13	283.47	0.008	189.352	182.387	0.006	1.896391
14	753.20	0.021	53.646	64.168	0.026	1.386303
15	334.59	0.010	144.039	145.801	0.011	1.182789
16	255.71	0.007	233.289	213.554	0.009	1.129507
17	458.78	0.013	165.353	181.917	0.011	1.975781
18	983.47	0.028	51.373	63.251	0.032	1.429688
19	569.83	0.016	78.649	74.111	0.021	1.034156
20	891.02	0.025	67.690	74.523	0.025	1.615737
LAST FIELD DELETED						
20	16765.71	0.477	38.317	46.169	0.038	28.637542
21	288.37	0.008	182.139	195.723	0.010	1.397807
22	392.45	0.011	118.521	128.955	0.015	1.275575
23	1034.90	0.029	42.517	46.735	0.035	1.048690
24	685.31	0.019	59.944	58.814	0.026	1.922392
25	1617.14	0.046	37.026	35.034	0.048	1.382522
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1531.93	0.044	110.736	137.495	0.127	2.993700	
SD	3196.31	0.391	91.414	86.523	0.021	7.287971
SE	639.20	0.018	18.283	17.934	0.004	1.457594
26	613.67	0.017	87.453	91.108	0.021	1.281392
27	1885.31	0.054	27.827	33.387	0.054	1.617800
28	746.33	0.021	84.459	87.535	0.020	1.849876
29	965.13	0.027	57.906	72.338	0.024	2.269678
30	175.71	0.005	306.373	239.773	0.008	1.345313
31	802.04	0.023	71.784	95.178	0.021	2.125601
32	446.73	0.013	123.518	101.792	0.015	1.637384
33	439.59	0.013	125.670	125.334	0.015	1.283501
34	280.82	0.008	178.232	171.703	0.012	0.786585
35	623.47	0.018	83.631	95.178	0.021	1.148688
36	594.69	0.017	125.167	121.753	0.015	2.239242
37	954.90	0.027	66.774	60.995	0.033	1.837649
38	931.84	0.024	68.934	59.942	0.026	1.492676
39	278.98	0.008	246.711	110.816	0.011	1.434585
40	15.31	0.003	1994.681	2343.750	0.001	3.733125
41	441.84	0.013	75.371	81.878	0.015	1.335321
42	179.18	0.005	238.553	251.343	0.007	1.921439
43	1473.02	0.042	36.521	36.323	0.051	1.381885
44	1357.76	0.039	51.681	45.312	0.041	1.977966
45	461.63	0.013	201.613	114.051	0.011	2.586128
46	273.27	0.008	274.927	276.744	0.010	1.665344
47	374.93	0.011	134.892	156.773	0.014	1.937462
48	600.00	0.017	92.635	99.206	0.019	1.264335
49	1421.22	0.040	43.163	51.286	0.039	1.779939
50	2285.51	0.065	26.687	29.724	0.064	1.670052
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1136.35	0.032	151.873	151.332	0.025	2.268048	
SD	2326.88	0.066	276.646	321.821	0.019	5.213975
SE	329.07	0.019	39.124	45.512	0.003	1.737367

DATE 1/21/79
 MOBIL TYCO SAMPLE # 65 JPL 5-640 MRR # 1 SPEC D
 TWINS ONLY
 OTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 31.42X100

MAG-500.0 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PP
 FRAME AREA- 1.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	4.46	63.371	62.500	20.833	1.267	1.000020
2	3.34	47.528	98.750	28.438	1.048	1.000007
3	43.03	611.528	18.750	4.360	1.277	1.000032
4	16.36	232.661	23.438	4.573	1.245	1.000012
5	12.29	174.722	31.250	5.168	1.240	1.000009
6	15.18	215.213	26.786	4.688	1.229	1.000013
7	4.58	65.181	37.500	9.868	1.123	1.000007
8	27.88	196.520	20.833	3.333	1.309	1.000021
9	58.56	832.874	9.868	1.953	1.592	1.000016
10	21.20	101.464	31.250	3.466	1.184	1.000023
11	1.75	24.896	62.500	15.625	1.375	1.000004
12	5.86	83.267	2.500	5.523	1.119	1.000009
13	9.48	134.889	23.438	5.944	1.147	1.000008
14	3.30	0.100	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
15	23.62	293.316	23.833	3.676	1.339	1.000013
16	31.41	146.764	18.750	4.838	1.221	1.000035
17	25.24	358.950	23.438	2.799	1.381	1.000011
18	16.10	229.340	18.750	3.178	1.347	1.000009
19	23.24	287.885	31.250	6.348	1.200	1.000030
20	4.55	64.729	62.500	10.417	1.107	1.000007
21	17.50	248.957	18.750	1.538	1.307	1.000013
22	0.89	12.674	93.750	16.875	1.032	1.000004
24	1.65	23.538	62.500	16.875	1.032	1.000004
25	66.58	946.941	8.929	1.713	1.477	1.000008

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	17.92	154.932	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.252	\$\$\$\$\$\$\$\$
SE	16.92	240.661	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.283	\$\$\$\$\$\$\$\$
	3.38	48.132	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.057	\$\$\$\$\$\$\$\$

26	54.77	1779.038	14.423	2.435	1.413	1.000027
27	10.26	146.236	16.875	5.068	1.208	1.000008
28	5.38	76.498	62.500	7.212	1.152	1.000008
29	6.08	86.456	62.500	7.500	1.147	1.000005
30	3.76	53.413	93.750	9.375	1.112	1.000004
31	58.94	238.305	9.868	1.953	1.624	1.000022
32	18.33	260.726	11.719	2.568	1.392	1.000009
33	5.70	81.024	31.250	9.568	1.120	1.000016
34	30.14	428.658	11.719	2.679	1.440	1.000012
35	42.27	601.117	11.729	3.753	1.320	1.000031
36	42.49	604.286	12.500	1.359	1.752	1.000009
37	51.56	733.291	8.929	1.997	1.080	1.000008
38	92.97	1322.187	8.152	1.172	1.939	1.000027
39	40.48	575.769	9.868	1.838	1.571	1.000014
40	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
41	29.89	425.337	15.625	2.259	1.472	1.000011
42	57.03	811.146	11.719	1.165	1.899	1.000010
43	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
44	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
45	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
46	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
47	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
48	72.57	1332.739	8.152	1.142	1.768	1.000020
49	118.36	1683.401	8.152	1.339	1.824	1.000029
50	39.34	559.474	20.833	3.568	1.405	1.000017

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	24.57	349.427	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.319	\$\$\$\$\$\$\$\$
SE	26.25	373.301	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.317	\$\$\$\$\$\$\$\$
	3.71	52.793	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.045	\$\$\$\$\$\$\$\$

DATE 1/31/79

MOBIL TYCO SAMPLE #65 JPL 5-643 MRR # 1 SPEC D

DISLOCATION PITS ONLY

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE DISLOCATION PIT AREA = 5.31 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR-

1.375000 UNITS/PP

FRAME AREA= 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	763.38	1.022	68.782	65.836	0.025	1.652241
2	2563.40	0.073	23.125	24.769	0.071	2.139453
3	2058.49	0.059	28.221	31.576	0.060	1.917773
4	3626.79	0.103	16.916	20.148	0.093	2.554909
5	1412.26	0.040	37.833	43.223	0.044	1.592473
6	1924.72	0.055	28.749	29.334	0.054	2.023294
7	1993.02	0.057	26.955	31.439	0.062	1.672772
8	1153.21	0.033	48.033	46.665	0.033	1.754182
9	362.83	0.110	137.665	132.042	0.114	1.181882
10	1529.81	0.044	39.624	44.389	0.040	2.188460
11	770.19	0.022	62.251	69.773	0.027	1.231827
12	2963.94	0.084	20.654	23.223	0.080	2.182817
13	4416.42	0.126	15.801	16.130	0.107	2.789499
14	561.73	0.116	82.165	86.436	0.121	1.181759
15	1330.38	0.037	48.854	51.997	0.035	2.134774
16	1526.14	0.043	33.116	38.328	0.048	1.651762
17	57.55	0.032	60.092	1041.667	0.102	1.383569
18	452.45	0.013	112.275	76.096	0.014	1.376403
19	334.91	0.010	136.167	155.215	0.012	1.194303
20	231.70	0.007	196.954	203.362	0.009	1.059433
21	534.53	0.015	108.507	86.485	0.018	1.724635
22	1409.25	0.040	35.920	42.750	0.046	1.553747
23	1273.96	0.036	43.768	49.394	0.038	1.815488
24	1430.94	0.041	41.281	48.626	0.039	2.008475
25	6.60	0.000	3514.776	6696.429	0.000	0.984375

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1386.10	0.039	110.731	366.209	0.143	1.711925
SD 1086.24	0.031	1774.643	1307.139	0.027	1.461447
SE 217.25	0.006	214.929	261.478	0.035	1.392288

26	779.76	0.022	59.828	63.445	0.028	1.243342
27	323.02	0.009	159.168	160.531	0.012	1.263471
28	1128.87	0.032	59.524	70.755	0.027	2.505664
29	913.21	0.026	52.817	54.569	0.033	1.281781
30	616.60	0.018	88.860	71.023	0.022	1.335938
31	772.08	0.022	133.357	99.971	0.017	2.232795
32	1036.79	0.029	68.381	60.058	0.027	2.279452
33	794.15	0.023	72.194	61.155	0.027	1.519925
34	280.38	0.008	206.044	185.644	0.009	1.637452
35	214.91	0.006	302.419	324.094	0.005	2.398625
36	275.28	0.008	256.148	251.340	0.008	2.159704
37	213.21	0.006	1030.220	256.849	0.005	4.294764
38	168.87	0.005	118.527	430.046	0.004	2.374705
39	86.60	0.002	794.492	459.559	0.003	2.082157
40	863.47	0.025	49.735	57.126	0.034	1.756657
41	489.08	0.014	99.734	103.022	0.018	1.274476
42	62.45	0.002	669.643	582.298	0.003	1.990359
43	193.02	0.005	201.321	209.774	0.008	1.866623
44	1243.47	0.035	44.878	53.176	0.037	1.975946
45	3595.85	0.102	16.573	19.550	0.095	2.471462
46	2993.96	0.085	18.612	21.139	0.092	1.814177
47	1578.07	0.045	31.253	37.345	0.051	1.619781
48	98.68	0.003	332.670	593.354	0.004	1.634375
49	84.72	0.002	750.303	601.282	0.002	2.525625
50	147.74	0.004	345.941	361.969	0.005	1.183972

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1072.13	0.030	284.598	291.240	0.031	1.814837
SD 1027.98	0.029	785.418	938.978	0.027	1.674175
SE 145.38	0.004	111.375	132.792	0.004	1.095343

DATE 1/21/79
 MOBIL TYCO SAMPLE # 66 JPL #5-643 MRR#1 SPEC E
 TWINS ONLY
 JTM OUTPUT DATA DIVIDED BY 130
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 26.78X130

MAG-800.1 UNITS-MM CAL. FACTOR- 1.00375 UNITS/PP
 FRAME AREA- 1.070313

FIELD	NO.	NO./AREA	MPV	MPH	L/A	AFETA
1	17.55	249.626	31.253	2.679	1.387	1.000006
2	5.23	74.351	187.533	23.438	1.048	0.000029
3	27.30	388.217	31.253	5.515	1.248	1.000021
4	18.78	267.131	18.750	3.989	1.272	1.000039
5	45.67	449.506	13.393	2.641	1.419	1.000019
6	72.96	1037.723	8.929	1.674	1.651	1.000023
7	129.46	1841.241	7.313	1.065	1.981	1.000027
8	63.25	908.140	14.423	1.488	1.664	1.000013
9	42.87	839.676	15.625	1.974	1.547	0.000012
10	34.69	493.370	23.438	4.688	1.237	0.000022
11	1.45	23.712	187.533	31.253	1.337	1.000015
12	31.40	446.635	18.750	3.125	1.331	1.000015
13	4.18	59.481	93.750	15.625	1.369	1.000008
14	13.59	193.112	31.253	3.476	1.288	1.000037
15	3.93	12.746	187.500	31.250	1.335	0.000033
16	22.22	315.991	20.833	3.409	1.317	0.000012
17	43.40	574.625	17.045	2.467	1.437	1.000013
18	11.17	158.792	23.438	1.074	1.344	1.000004
19	1.27	18.857	93.750	31.253	1.340	1.000005
20	4.22	63.012	93.750	15.625	0.072	1.000005
21	1.98	28.147	187.500	18.750	0.161	1.000004
22	0.03	3.100	SSSSSSSSSS	SSSSSSSSSS	1.000	SSSSSSSSSSSS
23	5.00	71.164	23.438	13.393	1.101	1.000006
24	16.15	14.870	187.533	11.250	1.335	0.000004
25	17.21	244.026	26.786	4.176	1.259	1.000039
AVERAGE						
	NO.	NO./AREA	MPV	MPH	L/A	AFETA
	24.58	349.533	SSSSSSSSSS	SSSSSSSSSS	1.274	SSSSSSSSSSSS
SD	29.26	416.196	SSSSSSSSSS	SSSSSSSSSS	1.241	SSSSSSSSSSSS
SE	3.85	83.239	SSSSSSSSSS	SSSSSSSSSS	1.048	SSSSSSSSSSSS
26	33.35	474.251	18.750	2.604	1.448	1.000013
27	30.88	439.233	17.045	2.173	1.424	1.000039
28	13.78	143.391	23.833	6.466	1.187	1.000006
29	5.33	78.599	23.438	13.393	1.101	1.000010
30	28.12	399.920	37.500	6.696	1.165	0.000035
31	24.31	745.731	17.045	3.125	1.352	0.000010
32	28.98	12.115	23.833	6.250	1.179	1.000036
33	0.03	1.330	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSS
34	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	1.000	SSSSSSSSSSSS
35	0.03	3.100	SSSSSSSSSS	SSSSSSSSSS	1.000	SSSSSSSSSSSS
36	30.92	439.731	18.750	4.588	1.251	1.000017
37	14.36	633.019	8.152	2.287	1.472	1.000014
38	33.76	480.693	18.750	4.261	1.253	1.000018
39	70.35	1000.548	13.393	1.676	1.325	1.000044
40	56.83	808.298	13.393	1.000	1.105	0.000008
41	67.03	953.282	13.393	1.459	1.627	1.000015
42	51.27	737.565	14.423	2.500	1.440	1.000016
43	27.00	383.968	23.438	2.344	0.451	0.000008
44	1.72	24.433	93.750	31.253	0.340	1.000006
45	4.56	64.791	31.253	14.423	0.088	0.000006
46	5.00	71.164	62.500	13.417	0.107	0.000006
47	1.00	0.000	SSSSSSSSSS	SSSSSSSSSS	1.000	SSSSSSSSSSSS
48	2.28	32.196	62.500	18.750	0.072	1.000004
49	1.16	16.463	187.500	27.533	1.027	0.000004
50	14.34	233.933	15.625	1.906	1.193	1.000008
AVERAGE						
	NO.	NO./AREA	MPV	MPH	L/A	AFETA
	23.74	337.584	SSSSSSSSSS	SSSSSSSSSS	1.263	SSSSSSSSSSSS
SD	25.76	466.332	SSSSSSSSSS	SSSSSSSSSS	1.239	SSSSSSSSSSSS
SE	3.84	51.627	SSSSSSSSSS	SSSSSSSSSS	1.034	SSSSSSSSSSSS

DATE 1/21/79
 MOBIL TYCO SAMPLE # 66 JPL 5-640 MRR # 1 SPEC E
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.22 PP

MAG-800X UNITS-MICRONS CAL. FACTOR- 3.375000 UNITS/PP
 FRAME AREA- 515625000 24

FIELD NO.	NO./AREA	MPV	MPH	L/A	AFETA	
1	1299.94	0.037	43.024	44.159	1.038	1.799204
2	1823.75	0.052	33.162	34.607	0.052	1.931818
3	930.27	0.026	54.601	56.581	0.032	1.336350
4	522.03	0.015	90.318	93.784	0.020	1.227392
5	786.59	0.022	59.651	73.299	0.025	1.621928
6	1287.16	0.037	51.426	55.729	0.037	2.049892
7	47.51	0.001	1008.065	1186.709	0.002	1.245536
8	665.52	0.019	78.649	76.344	0.023	1.391827
9	500.57	0.014	101.571	108.131	0.018	1.336193
10	984.87	0.028	72.282	81.993	0.022	1.973426
11	3042.91	0.087	75.621	83.773	0.073	1.821313
12	7936.97	1.226	10.752	11.122	0.158	4.265179
13	658.05	0.019	64.924	70.172	0.026	1.341349
14	2583.14	0.073	26.566	29.677	0.062	2.640930
15	1635.36	0.046	33.494	36.838	0.050	1.573348
16	1053.26	0.030	51.390	54.585	0.033	1.631131
17	733.14	0.021	78.981	83.855	0.022	1.799976
18	1124.14	0.032	46.031	51.710	0.035	1.634035
19	1935.36	0.065	29.169	31.198	0.058	1.747175
20	2852.49	0.081	38.849	46.740	0.069	2.575530
21	483.33	0.014	104.167	110.816	0.016	1.354187
22	1032.57	0.029	53.785	53.571	0.033	1.432833
23	733.14	0.021	78.886	81.842	0.024	1.461697
24	2564.94	0.073	25.773	27.119	0.064	2.483942
25	249.62	0.007	185.644	209.263	0.009	1.225489

AVERAGE					
NO.	NO./AREA	MPV	MPH	L/A	AFETA
1751.43	0.053	24.817	135.295	0.045	1.940132
SD 1878.80	0.053	97.113	324.483	0.037	1.777363
SE 375.76	0.011	38.033	44.897	0.007	1.155472

26	303.03	0.009	150.882	167.712	0.011	1.146973
27	1444.06	0.041	17.955	40.439	0.045	1.615901
28	1278.93	0.036	40.064	47.348	0.041	1.593909
29	4193.68	0.119	15.778	16.526	0.107	2.484602
30	1491.76	0.042	39.474	42.536	0.043	1.891273
31	2380.65	0.068	29.705	32.643	0.057	2.961944
32	781.99	0.022	58.777	67.012	0.028	1.231827
33	3507.47	0.100	18.859	20.363	0.090	2.413330
34	3086.21	0.088	19.247	21.818	0.081	2.339346
35	16300.57	0.464	12.654	11.901	0.147	10.818843
36	13724.90	0.390	9.884	11.182	0.145	7.592266
37	14727.97	0.419	51.681	46.434	0.032	166.326923
38	2334.10	0.066	127.205	69.393	0.026	20.397321
39	142.34	0.004	300.481	361.969	0.005	1.187322
40	381.23	0.011	140.135	151.454	0.012	1.599187
41	324.71	0.009	506.757	235.553	0.005	6.272615
42	84.87	0.002	669.643	699.627	0.003	1.597356
43	408.24	0.012	122.709	127.899	0.010	1.349873
44	696.74	0.023	74.582	75.727	0.023	1.402642
45	2145.40	0.061	26.401	30.077	0.062	1.925256
46	2309.77	0.066	29.334	33.577	0.059	2.467999
47	331.33	0.009	158.094	171.077	0.011	1.265625
48	724.52	0.021	67.495	71.401	0.025	1.370731
49	2044.64	0.058	26.408	28.617	0.065	1.610392
50	2445.40	0.070	21.950	23.455	0.078	1.615732

AVERAGE					
NO.	NO./AREA	MPV	MPH	L/A	AFETA
2427.54	0.069	102.538	104.702	0.047	5.899643
SD 3521.71	0.100	174.438	189.484	0.040	23.121502
SE 498.05	0.014	24.669	26.797	0.006	3.269874

DATE 1/21/79
 MOBIL TYCO SAMPLE # 67 JPL 5-640 RR # 1 SPEC F
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN'S AREA =28.53X100

MAG-800X3 UNITS-MM CAL. FACTOR- 0.000375 NITS/PP
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	(FETA
1	30.49	433.653	11.250	3.233	0.320	0.000114
2	6.28	89.826	62.533	7.500	1.141	0.000076
3	40.35	573.879	23.833	2.344	1.451	0.000112
4	3.58	50.931	46.875	15.625	1.080	0.000037
5	1.30	18.464	187.500	31.250	1.335	0.000005
6	8.60	122.261	46.875	5.250	1.184	0.000007
7	82.56	1174.237	14.423	1.576	1.661	0.000025
8	7.44	135.793	23.438	5.168	1.219	0.000035
9	29.93	425.669	18.750	2.568	1.178	0.000011
10	28.12	432.713	20.833	2.717	1.358	0.000011
11	10.39	147.712	46.875	13.393	1.393	0.000021
12	8.15	120.265	26.786	7.500	1.149	0.000018
13	6.46	91.821	37.500	4.696	1.163	0.000035
14	55.54	789.957	8.152	1.894	1.595	0.000014
15	64.33	917.738	13.393	1.735	1.637	0.000016
16	87.16	1239.579	13.393	1.720	1.621	0.000025
17	45.23	643.244	11.719	1.431	1.736	0.000013
18	77.40	1130.350	9.868	2.919	1.128	0.000014
19	24.95	354.807	26.786	2.435	0.430	0.000039
20	90.42	1235.988	18.750	2.373	1.443	0.000033
21	132.32	1881.225	7.813	1.217	1.347	0.000025
22	87.58	1245.667	15.625	1.328	1.749	0.000017
23	1.79	25.450	93.750	18.750	1.361	0.000034
24	8.18	116.273	93.750	10.833	1.053	0.000033
25	37.28	438.659	18.750	1.183	1.504	0.000013
26	54.88	783.476	12.500	1.359	1.760	0.000010
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	(FETA
SD	39.40	563.348	15.719	1.332	1.422	0.000014
SE	5.17	128.733	38.69	7.445	1.194	0.000038
	6.88	97.810	7.460	1.460	1.158	0.000032
27	120.81	1718.144	10.417	1.293	1.627	0.000035
28	73.44	1044.460	7.813	1.389	1.781	0.000015
29	131.93	1876.335	9.868	1.645	1.669	0.000033
30	83.54	1188.179	5.250	1.036	1.021	0.000012
31	79.12	1125.302	12.500	1.476	1.707	0.000017
32	110.21	1575.922	11.129	1.133	1.949	0.000016
33	76.88	1293.365	9.868	1.928	1.123	0.000011
34	71.65	1319.310	9.868	1.359	1.319	0.000011
35	66.67	948.148	13.393	1.769	1.638	0.000018
36	17.47	248.515	37.500	7.500	1.152	0.000014
37	55.12	783.969	10.417	1.645	1.645	0.000012
38	14.74	209.591	20.833	3.676	1.275	0.000007
39	40.63	577.871	18.750	4.167	1.264	0.000033
40	55.37	787.462	11.129	1.399	1.741	0.000011
41	51.40	731.072	9.868	2.131	1.531	0.000015
42	10.81	153.790	46.875	5.515	1.192	0.000007
43	84.70	1234.647	7.813	1.136	1.124	0.000015
44	59.16	841.357	9.868	1.933	1.075	0.000038
45	27.02	384.250	18.750	4.176	1.291	0.000018
46	37.37	531.462	11.719	2.338	1.531	0.000012
47	56.42	832.433	15.625	1.769	1.587	0.000015
48	46.46	660.710	9.868	2.717	1.424	0.000021
49	10.32	146.713	23.438	3.409	1.397	0.000006
50	21.05	299.415	31.250	5.682	1.237	0.000021
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	(FETA
SD	48.55	693.422	26.766	4.475	1.514	0.000015
SE	35.39	533.347	13.123	5.821	1.313	0.000038
	5.31	71.184	4.246	1.823	1.344	0.000001

DATE 1/21/79
 MOBILE TPCO SAMPLE # 67 JPL 5-640 MRR # 1 SPEC F
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.27 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	548.58	0.016	90.492	92.365	1.019	1.315686
2	211.76	0.006	311.625	233.209	0.008	1.097465
3	296.02	0.008	233.344	215.517	0.008	2.413714
4	4334.36	1.122	15.224	16.892	1.109	2.563142
5	388.05	0.011	113.225	123.844	0.015	1.119340
6	203.98	0.006	386.677	286.697	0.006	1.511719
7	32.83	0.001	2286.585	3024.194	0.001	3.241016
8	883.27	0.025	51.370	57.763	0.033	1.299521
9	1209.87	0.051	31.136	34.353	0.054	1.778882
10	759.33	0.022	76.468	78.848	0.024	1.558561
11	3442.13	0.098	16.356	18.477	0.103	1.933994
12	3247.63	0.092	23.460	20.873	0.083	2.621783
13	2312.71	0.066	23.928	23.898	0.073	1.683331
14	419.92	0.012	213.674	172.335	0.009	3.382643
15	59.77	0.002	655.594	744.148	0.002	1.197213
16	241.75	0.007	293.887	372.024	0.006	3.143992
17	343.26	0.010	359.195	166.223	0.009	4.103075
18	28.65	0.001	1512.397	1129.518	0.001	3.733492
19	381.01	0.011	124.502	128.955	0.014	1.153125
20	42.31	0.001	956.633	1231.823	0.002	1.161458
21	0.00	0.000	555555555	555555555	0.000	555555555555
22	0.00	0.000	555555555	555555555	0.000	555555555555
23	3183.27	0.093	18.133	23.227	0.092	1.882488
24	3032.07	0.086	16.699	18.437	0.099	1.535917
25	1759.39	0.059	30.577	32.484	0.056	1.643394

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1117.04	0.032	555555555	555555555	0.033	555555555555
SE	1315.11	0.037	555555555	555555555	0.037	555555555555
SE	763.02	0.027	555555555	555555555	0.027	555555555555

26	0.00	0.000	555555555	555555555	0.000	555555555555
27	35.67	0.001	1616.379	1339.286	0.001	1.321875
28	13.97	0.002	829.646	92.368	0.002	1.753125
29	2.28	0.000	18753.333	31253.333	0.000	1.687533
30	1.90	0.000	696.429	375.330	0.000	3.468750
31	23.91	0.001	1339.286	1116.371	0.001	0.732753
32	16.51	0.000	3624.167	533.784	0.001	0.941136
33	12.52	0.000	2643.909	3348.214	0.001	0.843753
34	17.44	0.000	376.087	514.706	0.000	1.289763
35	391.46	0.008	158.361	174.257	0.011	1.223339
36	2874.00	0.032	21.115	24.529	0.079	2.191262
37	307.32	0.009	201.183	155.990	0.011	1.697994
38	3338.14	0.095	31.386	22.760	0.031	2.764136
39	252.84	0.007	174.937	197.368	0.010	1.136080
40	339.55	0.010	167.411	169.837	0.010	1.937380
41	1094.30	0.031	49.735	53.541	0.033	1.744355
42	675.99	0.019	83.631	79.517	0.022	1.447706
43	443.2	0.013	119.732	132.415	0.015	1.437844
44	131.57	0.004	382.653	317.797	0.006	1.174134
45	1454.27	0.041	137.321	41.136	0.044	1.729936
46	398.36	0.011	109.139	114.749	0.016	1.216435
47	231.50	0.007	271.739	163.256	0.008	1.633388
48	1040.23	0.033	51.230	57.445	0.035	1.474008
49	1140.42	0.032	43.605	48.525	0.039	1.354417
50	1205.88	0.034	43.605	50.457	0.037	1.721911

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	866.34	0.025	555555555	555555555	0.026	555555555555
SE	1137.58	0.032	555555555	555555555	0.032	555555555555
SE	160.88	0.005	555555555	555555555	0.004	555555555555

DATE 1/21/79
 MO31L TYCO SAMPLE # 68 JPL # 5-643 MRR 3 #1 SPEC G
 TWINS ONLY
 OTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TE TWIN AREA = 27.35X100

MAG-800.1 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PO
 FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	10.38	147.682	11.250	5.738	1.208	1.000007
2	15.54	221.003	26.786	2.976	0.381	1.000005
3	6.36	97.481	187.500	10.417	0.104	1.000008
4	4.35	61.881	187.500	17.045	1.161	1.000008
5	19.16	272.484	16.875	15.625	1.083	0.000007
6	9.62	136.762	18.750	5.859	0.205	1.000007
7	41.28	587.089	23.438	5.068	1.221	1.000003
8	4.53	64.481	93.750	7.813	1.131	1.000004
9	39.34	559.529	12.500	2.206	1.499	1.000013
10	123.40	1755.327	8.929	1.114	1.045	1.000018
11	82.16	1168.458	14.423	1.820	1.592	1.000023
12	48.24	683.291	15.625	1.220	0.581	1.000012
13	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
14	0.95	13.520	187.500	31.250	1.335	1.000004
15	13.60	193.443	11.250	6.466	1.173	1.000004
16	4.72	57.081	16.875	15.425	1.377	1.000009
17	2.12	30.160	62.500	17.045	1.364	1.000004
18	2.71	38.481	93.750	17.045	1.067	1.000005
19	10.38	147.682	26.786	5.357	1.216	1.000007
20	1.93	27.040	187.500	11.250	1.053	1.000007
21	2.52	35.881	187.500	11.250	0.340	0.000000
22	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
23	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
24	18.45	265.204	12.500	4.261	1.280	1.000009
25	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	18.47	62.667	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.205	\$\$\$\$\$\$\$\$\$
SD	28.69	438.100	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.243	\$\$\$\$\$\$\$\$\$
SE	5.74	81.620	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.149	\$\$\$\$\$\$\$\$\$

26	1.06	15.380	187.500	31.250	1.335	1.000004
27	20.40	290.165	26.786	2.206	7.456	1.000006
28	1.23	1.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
29	1.00	21.323	93.750	17.045	1.167	1.000003
30	1.88	23.920	187.500	11.250	0.340	1.000003
31	4.31	61.361	93.750	14.423	1.375	0.000008
32	16.49	234.324	26.786	2.841	1.352	1.000006
33	3.99	625.570	11.719	1.589	1.640	1.000009
34	16.97	241.284	31.250	6.466	1.173	1.000013
35	6.03	85.881	93.750	12.500	0.191	1.000012
36	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
37	54.66	777.412	9.868	1.339	0.816	1.000010
38	18.68	265.724	23.438	1.125	1.347	0.000008
39	1.79	25.480	\$\$\$\$\$\$\$\$\$	31.250	1.035	1.000007
40	4.94	73.221	187.500	31.250	1.040	1.000019
41	4.95	497.128	14.423	2.344	1.496	0.000010
42	19.45	276.644	23.438	2.167	1.435	1.000006
43	5.12	72.881	26.786	13.398	1.396	1.000010
44	63.62	234.814	10.417	1.194	1.912	1.000012
45	48.56	693.571	11.719	1.258	1.837	1.000008
46	86.87	1235.539	7.500	1.891	1.323	1.000010
47	19.17	274.344	14.423	1.233	0.376	1.000011
48	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$
49	0.00	0.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$
50	1.35	19.240	93.750	31.250	1.340	1.000005

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	18.57	265.536	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.256	\$\$\$\$\$\$\$\$\$
SD	26.87	373.731	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.337	\$\$\$\$\$\$\$\$\$
SE	3.69	62.429	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	1.343	\$\$\$\$\$\$\$\$\$

DATE 1/21/79
 MO31L TYCO SAMPLE # 68 JPL 5-643 MR#1 SPEC G
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE DISLOCATION PIT AREA = 5.76 PP

MAG-833.0 UNITS-MICRONS CAL. FACTOR- 0.375000 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD	NO.	NO./AREA	MFPV	MFPH	LZA	AFETA
1	530.03	0.015	80.610	92.183	1.020	1.341650
2	1133.51	0.032	38.965	43.878	1.043	1.452754
3	210.42	0.016	45.419	51.823	1.037	1.432248
4	491.07	0.014	81.239	91.732	1.021	1.161879
5	1404.86	0.040	31.793	36.295	0.351	1.455163
6	921.60	0.028	43.524	48.453	1.038	1.274189
7	3980.38	0.113	18.148	20.218	1.194	1.534467
8	1918.92	0.055	30.448	35.492	1.051	1.451622
9	738.37	0.021	61.556	71.784	1.028	1.332023
10	1935.35	0.054	34.116	35.139	1.049	1.858373
11	17.88	0.031	929.482	5859.375	1.103	1.621394
12	330.56	0.039	137.655	160.043	1.012	1.521307
13	273.44	0.038	138.889	156.773	1.012	1.075167
14	2518.40	0.078	19.913	23.356	0.381	1.959564
15	862.67	0.025	44.191	62.375	0.331	1.535749
16	824.31	0.023	62.542	74.701	1.127	1.929733
17	1843.58	0.152	25.552	30.154	0.365	1.526888
18	2069.44	0.059	24.795	26.778	0.367	1.783245
19	2031.74	0.059	23.362	25.723	0.374	1.555696
20	3332.12	0.186	18.837	19.008	0.093	2.104555
21	2357.99	0.059	24.212	26.056	0.370	1.583065
22	2291.49	0.065	22.860	25.407	0.371	1.915490
23	7715.08	0.219	22.226	27.316	0.173	2.841535
24	521.35	0.015	88.527	102.165	1.021	1.502836
25	6932.12	0.197	19.634	21.399	0.083	2.731396
AVERAGE						
NO.	1866.71	0.053	71.148	92.718	1.047	1.457933
SD	1874.81	0.053	65.410	137.391	0.028	1.254765
SE	374.96	0.011	113.382	27.478	0.036	1.450953
26	756.11	0.022	67.715	68.281	1.027	1.448438
27	2787.33	0.079	17.139	18.999	0.096	1.723461
28	133.15	0.034	291.149	328.947	0.106	0.980540
29	1661.98	0.047	25.168	32.518	0.064	1.461675
30	1364.24	0.039	31.753	36.380	0.053	1.350894
31	2463.19	0.070	23.456	23.415	0.081	1.805600
32	2290.28	0.065	23.532	27.444	0.068	2.167202
33	994.10	0.028	48.400	56.408	1.034	1.639957
34	640.80	0.018	70.969	79.787	0.022	1.540198
35	1089.06	0.031	41.574	50.134	0.038	1.600981
36	561.28	0.016	75.850	88.863	1.022	1.277083
37	1046.18	0.030	41.574	51.090	0.038	1.414702
38	1039.06	0.030	33.297	42.751	0.131	2.324974
39	92.19	0.003	316.667	506.757	0.104	1.148798
40	131.77	0.004	282.462	332.447	0.006	1.199263
41	283.16	0.008	174.581	217.014	0.008	2.466230
42	314.41	0.009	224.694	149.522	0.010	1.959314
43	478.30	0.014	87.535	101.992	0.020	1.249748
44	2218.06	0.063	22.493	23.138	0.078	1.599844
45	401.74	0.011	165.344	93.376	0.115	2.033789
46	44.27	0.001	384.434	637.755	0.003	1.280692
47	506.25	0.014	352.444	73.705	0.111	5.942935
48	1684.03	0.048	31.074	33.808	0.156	1.962633
49	1222.57	0.035	34.774	39.014	0.047	1.271221
50	792.71	0.023	56.408	65.928	0.029	1.479479
AVERAGE						
NO.	1433.89	0.041	155.890	210.548	0.041	2.115540
SD	1498.89	0.043	421.811	815.936	0.028	1.757942
SE	211.98	0.006	59.653	115.391	0.004	1.248611

DATE 1/31/79
 MOBIL TYCO SAMPLE # 69
 JPL 5-640 MRR # 1 SPEC H
 TWINS ONLY
 STM OUTPUT DATA DIVIDED BY 100
 .11 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 33.71X100

MAG-800.0 UNITS-MM CAL. FACIDR- 0.000375 UNITS/PP
 FRAME AREA- 1.070313

FIELD	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
1	5.36	76.380	46.875	7.212	1.147	1.000005
2	46.28	558.269	15.525	1.630	1.651	1.000011
3	25.16	356.385	13.393	0.776	1.539	1.000008
4	3.23	45.496	93.750	10.117	3.104	0.000035
5	1.73	4.644	93.750	17.045	1.354	0.000014
6	27.19	392.433	23.438	1.360	1.531	1.000010
7	1.73	4.170	32.500	11.250	1.043	1.000014
8	1.70	24.170	187.500	31.250	1.037	1.000017
9	1.30	18.483	187.500	31.250	1.037	0.000005
10	7.93	112.792	11.250	7.212	1.160	1.000008
11	6.43	91.466	11.250	13.393	1.120	1.000009
12	16.29	231.745	18.750	1.161	1.264	1.000013
13	38.09	541.686	10.417	1.720	1.664	0.000019
14	20.26	288.141	26.786	2.757	1.354	1.000029
15	7.91	823.666	11.029	1.302	1.789	1.000012
16	70.14	997.593	18.750	1.013	1.547	1.000021
17	45.92	653.156	10.417	1.476	1.096	1.000019
18	69.98	985.172	11.029	1.083	1.109	1.000012
19	38.35	345.477	13.393	2.604	1.429	1.000015
20	4.17	19.240	93.750	10.417	1.101	1.000006
21	94.80	1348.291	10.417	1.119	1.752	0.000020
22	19.06	71.383	13.393	3.006	1.301	1.000013
23	8.90	126.536	16.875	15.625	1.077	1.000019
24	35.39	533.299	17.045	2.757	1.435	1.000015
25	98.37	1399.000	7.813	0.826	1.293	0.000013
AVERAGE						
	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
SD	29.81	423.946	43.768	8.273	1.109	1.000013
SE	5.74	408.515	49.999	9.664	1.338	1.000005
		81.743	10.000	1.938	1.168	1.000001
26	102.13	1452.553	8.152	1.537	3.725	1.000025
27	119.13	1694.250	9.868	1.420	1.763	1.000026
28	56.95	839.923	8.523	1.431	3.757	1.000013
29	68.54	974.845	7.813	1.008	1.088	0.000011
30	105.80	1504.684	7.500	1.966	1.149	0.000017
31	93.90	1292.843	8.523	1.047	1.965	0.000016
32	94.57	1344.974	13.393	1.410	1.747	0.000020
33	85.70	1218.912	8.523	1.302	1.843	1.000017
34	93.90	1335.496	9.375	1.143	1.979	1.000020
35	81.84	1163.938	5.944	1.250	1.277	1.000022
36	81.17	1154.460	15.625	1.808	1.251	1.000049
37	51.52	732.674	26.786	1.676	1.331	1.000027
38	65.11	926.032	8.152	1.856	1.630	1.000020
39	54.78	779.118	15.625	1.995	1.541	1.000017
40	38.22	540.738	17.045	1.995	1.528	1.000011
41	57.55	818.453	11.719	1.603	1.635	1.000017
42	12.33	171.384	23.438	2.841	1.373	1.000005
43	18.33	260.654	15.625	3.409	1.323	1.000011
44	79.64	1132.659	10.417	1.453	1.744	1.000021
45	23.29	331.267	31.250	1.573	0.240	1.000016
46	27.56	391.929	18.750	2.641	0.405	0.000011
47	7.20	132.366	31.250	5.682	1.187	1.000016
48	35.85	509.934	14.423	1.360	1.269	0.000030
49	89.10	1267.252	11.029	1.563	1.777	1.000029
50	10.16	144.544	26.786	3.989	1.277	1.000006
AVERAGE						
	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
SD	45.92	653.385	29.265	5.316	1.513	1.000014
SE	34.63	492.581	38.614	7.509	1.326	1.000008
	4.90	69.561	5.461	1.162	1.046	1.000001

DATE 1/21/79
MOBIL TYCO SAMPLE # 69 JPL 5-640 VRR # 1 SPEC H
DISLOCATION PITS ONLY
.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
AVERAGE DISLOCATION PIT AREA = 5.34 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 NITS/PP
FRAME AREA- 3.515625000 04

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	94.19	0.003	781.250	815.217	1.032	1.768359
2	913.11	1.026	51.796	53.339	0.032	1.341854
3	1803.37	0.051	26.319	29.097	1.062	1.409177
4	1820.04	1.052	28.204	29.904	1.058	1.636033
5	535.58	0.017	48.481	49.858	1.026	1.674223
6	3546.25	1.181	17.599	19.133	1.097	2.170347
7	2040.82	1.358	29.242	29.895	0.057	2.000694
8	1679.96	0.048	16.030	15.782	1.048	2.021710
9	1662.73	0.047	28.935	31.790	1.059	1.406092
10	7384.83	0.217	17.543	12.513	1.152	4.119937
11	3905.99	0.111	14.028	15.452	1.119	1.887488
12	3050.37	0.087	18.973	21.167	1.090	3.183642
13	4421.72	0.126	14.159	16.619	1.114	2.654227
14	289.89	0.008	478.316	468.759	1.005	1.177311
15	4.19	1.103	5375.000	13392.257	1.000	1.843750
16	52.25	1.101	852.273	1041.467	0.032	2.989859
17	81.46	1.102	928.218	148.674	1.007	1.911621
18	834.27	0.124	52.986	57.026	1.032	1.113722
19	344.94	0.013	136.265	147.106	1.012	1.221846
20	16.73	0.003	2840.909	3753.000	0.001	1.984375
21	2906.74	0.003	19.199	22.412	1.084	2.011789
22	1873.09	0.153	78.255	83.667	1.063	1.564531
23	3326.22	0.095	18.483	21.153	0.088	2.092511
24	57.49	1.102	704.887	76.168	1.032	1.981179
25	331.97	0.009	333.398	279.451	1.004	1.333977
26	27.34	1.001	1950.125	1488.895	1.001	1.207721

AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1655.61	0.047	723.731	884.983	1.047	2.002613
SD	1770.53	0.050	1852.333	2617.995	1.043	1.343976
SE	347.23	0.010	163.272	513.431	0.008	1.263575

27	1332.43	1.037	12.936	12.733	1.036	1.403064
28	238.19	1.007	169.531	186.382	1.010	1.000087
29	53.13	1.008	860.097	919.118	0.002	1.731299
30	14.04	0.003	2130.602	4376.087	1.001	1.958807
31	18.35	0.001	3906.253	9024.194	1.001	1.984375
32	49.63	1.001	928.218	1041.667	0.002	1.164551
33	99.14	1.003	604.839	604.839	0.103	1.736555
34	407.30	0.012	112.137	130.375	1.016	1.296014
35	268.01	0.008	159.983	184.547	1.011	1.246528
36	234.16	1.007	184.185	186.382	0.009	0.951629
37	1688.39	1.048	12.964	17.955	1.051	1.856332
38	162.92	1.005	92.456	98.567	1.006	1.274414
39	219.18	0.006	39.263	34.962	0.008	1.211857
40	914.98	1.006	58.557	65.928	0.008	1.827377
41	435.99	1.012	110.424	126.178	0.015	1.270295
42	2100.00	1.060	13.91	16.786	0.069	1.496175
43	220.60	0.006	241.624	274.927	1.007	1.345139
44	269.29	0.008	149.046	173.611	0.011	1.991268
45	614.42	1.017	76.531	87.291	0.021	1.437354
46	3011.80	0.086	18.057	18.404	1.006	1.686556
47	2885.96	1.082	20.727	22.242	0.083	2.095911
48	167.98	0.005	234.375	235.553	0.009	0.714696
49	913.30	0.026	46.781	48.300	1.037	1.088616
50	2986.52	0.085	20.492	22.407	1.082	2.166848

AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	1245.87	0.035	589.211	700.964	1.037	1.732455
SD	1534.94	1.043	1467.175	2012.498	0.038	1.055891
SE	212.83	0.006	307.493	284.610	0.005	1.149313

DATE 1/22/79

MOBIL TYCO SAMPLE # 70 JPL 5-640 MRR 72 SPEC A

TWINS ONLY

31MM OUTPUT DATA DIVIDED BY 133

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE TWIN AREA =31.43X100

MAG-800.3 UNITS-MM CAL. FACTOR-

1.144375 UNITS/PP

FRAME AREA- 1.373313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
2	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
3	0.00	0.000	\$\$\$\$\$	93.750	1.000	\$\$\$\$\$
4	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
5	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
6	7.39	389.647	18.750	4.934	1.209	1.000024
7	36.75	513.140	17.045	7.882	1.211	1.000032
8	69.71	991.438	7.500	2.178	1.379	1.000034
9	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
10	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
11	18.49	262.905	3.868	4.376	1.288	1.000010
12	8.69	123.534	37.500	4.696	1.163	1.000016
13	7.57	107.696	46.875	15.625	1.088	1.000011
14	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
15	1.05	14.933	127.500	31.250	1.437	1.000035
16	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
17	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
18	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
19	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
20	3.05	43.440	93.750	15.625	0.069	0.000007
21	42.09	598.664	8.152	3.125	1.379	1.000027
22	10.47	148.874	93.750	9.668	1.096	1.000015
23	27.01	384.175	23.438	2.636	1.299	1.000013
24	4.07	57.921	46.875	15.625	1.075	1.000039
25	1.52	21.268	33.333	31.250	1.035	1.000007

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	13.29	146.374	\$\$\$\$\$	\$\$\$\$\$	0.094	\$\$\$\$\$
	17.18	244.375	\$\$\$\$\$	\$\$\$\$\$	1.125	\$\$\$\$\$
SE	3.44	48.875	\$\$\$\$\$	\$\$\$\$\$	1.125	\$\$\$\$\$

26	90.39	1285.566	17.045	2.757	1.397	0.000036
27	23.74	337.568	37.500	6.250	1.163	1.000026
28	49.41	792.740	14.423	5.068	0.240	0.000027
29	33.53	476.940	9.868	1.674	1.695	0.000009
30	59.47	845.731	6.048	1.359	1.773	0.000015
31	60.93	866.546	10.417	2.679	1.440	1.000027
32	30.89	439.382	13.393	2.315	1.485	1.000011
33	18.90	268.788	14.423	3.348	1.331	1.000012
34	11.80	167.879	37.500	18.750	1.075	0.000026
35	39.45	561.186	13.393	6.048	1.216	1.000035
36	36.14	514.045	8.523	1.720	1.627	0.000009
37	76.49	1087.821	11.029	2.933	1.387	1.000042
38	25.52	362.909	11.719	2.717	1.403	0.000010
39	3.25	46.155	93.750	10.417	1.184	1.000025
40	1.08	15.385	\$\$\$\$\$	11.250	1.035	1.000035
41	15.62	222.180	31.250	17.045	1.199	1.000035
42	4.45	63.351	37.500	7.500	1.149	1.000025
43	40.66	578.301	18.750	4.464	1.253	1.000030
44	48.11	684.187	9.375	2.060	0.525	1.000015
45	5.74	83.998	46.875	6.250	1.174	1.000045
46	7.73	109.959	93.750	10.417	1.194	1.000011
47	0.00	0.000	\$\$\$\$\$	\$\$\$\$\$	1.000	\$\$\$\$\$
48	2.83	40.273	62.500	13.417	1.104	1.000034
49	4.90	69.686	18.750	31.250	1.037	1.000022
50	62.33	86.457	8.523	1.875	1.595	1.000023

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	20.21	287.431	\$\$\$\$\$	\$\$\$\$\$	0.193	\$\$\$\$\$
	23.76	337.883	\$\$\$\$\$	\$\$\$\$\$	1.202	\$\$\$\$\$
SE	3.36	47.784	\$\$\$\$\$	\$\$\$\$\$	1.129	\$\$\$\$\$

DATE 1/22/79
 MOBIL TYCO SAMPLE # 73 JPL 5-643 MRR # 2 SP#0 A
 DISLOCATION PITS ONLY
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

MAG-800.1 UNITS-MICRONS CAL. FACTOR- 1.375333 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD NO. NO./AREA MFPV MFPH L/A AREA
 MAG-800.1 UNITS-MICRONS CAL. FACTOR- 1.375333 UNITS/PP
 FRAME AREA- 3.515625000 34

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AREA
1 558.24	3.316	84.765	118.737	1.319	14.279753
LAST FIELD DELETED					
1 329.22	3.339	186.382	159.439	1.317	1.762713
2 421.96	3.312	105.219	168.312	1.313	1.690642
3 552.35	3.316	124.837	127.551	1.315	1.932393
4 473.98	3.313	99.527	113.947	1.318	1.215947
5 253.53	3.307	787.815	233.749	1.313	2.264915
6 425.88	3.312	136.777	113.788	1.316	1.746319
7 612.95	3.317	91.553	89.371	1.323	1.484536
8 563.73	3.316	97.352	134.983	1.316	1.691619
9 347.06	3.313	143.135	186.312	1.311	2.416566
10 1087.45	3.331	49.446	51.997	1.329	1.452339
11 874.71	3.325	74.883	73.185	1.324	2.356814
12 373.98	3.339	179.254	196.541	1.313	1.521136
13 812.55	3.323	58.999	65.149	1.329	1.377661
14 651.96	3.319	97.350	115.456	1.317	2.216313
15 635.13	3.317	95.381	103.821	1.319	1.327122
16 851.96	3.324	71.323	27.347	1.322	2.622385
17 1538.82	3.344	47.427	49.114	1.338	2.911939
18 2076.67	3.358	33.711	42.517	1.341	1.295918
19 1148.82	3.333	63.396	78.649	1.325	2.921739
20 871.76	3.323	91.931	112.952	1.316	4.464844
21 18.43	3.331	2286.585	2533.784	1.331	1.316827
22 1119.41	3.329	58.314	75.666	1.325	2.738237
23 1353.53	3.339	49.725	44.622	1.336	2.196232
24 1266.67	3.336	73.357	82.165	1.322	5.191171
25 0.31	3.333	5355555555	5355555555	1.333	5555555555
26 174.51	3.335	299.524	258.264	1.336	1.137784
27 649.41	3.318	134.123	148.817	1.315	1.279937
28 616.86	3.318	158.394	64.770	1.318	2.193753

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AREA
SD 746.67	3.323	5555555555	5555555555	1.319	5555555555
SE 457.95	3.313	5555555555	5555555555	1.311	5555555555
SE 86.55	3.332	5555555555	5555555555	1.332	5555555555

29 358.94	3.313	164.186	184.547	1.311	1.665296
30 26.47	3.331	1616.379	1832.885	1.331	1.126523
31 389.41	3.314	127.551	138.371	1.314	1.275257
32 57.84	3.322	852.973	84.337	1.323	1.263732
33 2644.51	3.375	27.341	32.316	1.369	2.996223
34 133.53	3.314	966.495	414.823	1.323	4.788281
35 133.33	3.331	1266.892	1442.338	1.331	3.996794
36 47.39	3.311	1041.667	1284.247	1.322	2.998922
37 315.49	3.309	146.484	141.917	1.311	1.338953
38 737.06	3.321	77.163	82.381	1.322	1.621591
39 497.65	3.314	108.382	125.522	1.314	1.823953
40 1263.53	3.336	47.492	56.134	1.334	1.928359
41 9702.94	3.276	14.752	17.523	1.314	13.312792
42 1487.25	3.342	58.331	98.111	1.322	6.387773
43 601.96	3.317	132.633	133.936	1.313	3.721713
44 551.37	3.316	113.473	117.334	1.316	1.822293
45 1377.25	3.339	42.306	49.82	1.336	1.967629
46 1981.37	3.356	29.923	35.126	1.354	2.135566
47 4756.86	3.136	17.612	33.796	1.388	4.336286
48 1364.12	3.339	43.323	44.495	1.341	1.774434
49 435.49	3.312	167.713	124.834	1.314	2.154167
50 326.47	3.339	168.111	135.219	1.311	1.448972

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AREA
SD 976.88	3.328	5555555555	5555555555	1.322	5555555555
SD 1483.73	3.342	5555555555	5555555555	1.322	5555555555
SE 239.43	3.336	5555555555	5555555555	1.333	5555555555

DATE 1/22/79
 MOBIL TYCO SAMPLE # 71 JPL 5-640 MRR # 2 SPEC B
 TWINS ONLY
 QTM OUTPUT DATA DIVIDED BY 100
 .31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY
 AVERAGE TWIN AREA = 33.75X100

MAG-833.0 UNITS-MM CAL. FACTOR- 1.000075 UNITS/PP
 FRAME AREA- 0.274343

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	42.22	621.494	18.753	0.339	1.000000
2	3.33	1.333	0.000	0.000	0.000000
3	3.05	43.434	37.572	0.085	1.000004
4	53.42	759.783	9.375	0.773	1.000014
5	19.88	282.759	17.045	1.405	1.000038
6	21.96	312.257	18.750	0.357	1.000010
7	55.08	783.381	8.929	1.856	1.000026
8	18.76	266.746	14.423	0.403	1.000007
9	34.25	487.137	13.393	1.357	1.000020
10	84.65	1203.937	8.152	1.813	0.000027
11	56.36	871.501	8.152	1.524	1.000015
12	79.82	1135.249	12.500	1.752	1.000022
13	89.42	1271.783	9.868	1.750	1.000025
14	32.98	469.017	11.719	2.500	1.000017
15	9.30	132.319	12.500	7.212	1.000006
16	59.82	850.805	8.152	2.641	1.000022
17	77.39	1103.695	7.212	1.894	1.000031
18	12.59	179.795	63.533	0.417	1.000023
19	43.41	574.788	11.719	2.500	1.000019
20	27.38	385.159	13.393	5.208	1.000021
21	31.59	449.212	9.375	1.989	1.000025
22	23.73	337.541	23.438	6.248	1.000028
23	34.58	491.773	15.625	3.472	1.000023
24	88.95	1265.040	10.417	3.024	1.000047
25	7.59	107.878	46.875	13.393	1.000018

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	43.20	571.673	0.000	0.000	1.374	0.000000
SE	27.12	385.771	0.000	0.000	1.273	0.000000
	5.42	77.154	0.000	0.000	1.041	0.000000

26	83.11	1182.025	8.929	2.038	1.565	1.000028
27	84.74	1235.232	8.929	1.431	1.704	1.000025
28	71.23	1012.632	5.044	1.076	0.856	0.000019
29	37.99	543.284	7.813	1.613	0.693	1.000010
30	46.84	666.232	13.393	5.615	1.327	1.000044
31	0.30	0.300	0.000	0.000	1.000	0.000000
32	0.30	0.300	0.000	0.000	1.000	0.000000
33	0.30	0.300	0.000	0.000	1.000	0.000000
34	0.30	0.300	0.000	0.000	1.000	0.000000
35	0.30	0.300	0.000	0.000	1.000	0.000000
36	0.30	0.300	0.000	0.000	1.000	0.000000
37	0.30	0.300	0.000	0.000	1.000	0.000000
38	0.30	0.300	0.000	0.000	1.000	0.000000
39	0.30	0.300	0.000	0.000	1.000	0.000000
40	0.30	0.300	0.000	0.000	1.000	0.000000
41	0.30	0.300	0.000	0.000	1.000	0.000000
42	0.30	0.300	0.000	0.000	1.000	0.000000
43	0.30	0.300	0.000	0.000	1.000	0.000000
44	0.30	0.300	0.000	0.000	1.000	0.000000
45	0.30	0.300	0.000	0.000	1.000	0.000000
46	0.30	0.300	0.000	0.000	1.000	0.000000
47	0.30	0.300	0.000	0.000	1.000	0.000000
48	0.30	0.300	0.000	0.000	1.000	0.000000
49	0.30	0.300	0.000	0.000	1.000	0.000000
50	0.30	0.300	0.000	0.000	1.000	0.000000

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	39.75	565.333	0.000	0.000	1.340	0.000000
SE	12.33	459.382	0.000	0.000	1.243	0.000000
	4.57	64.066	0.000	0.000	1.334	0.000000

DATE 1/22/79
 MOBIL TYCO SAMPLE # 71 JPL 5-640 MRR#2 SPEC 3
 DISLOCATION PITS ONLY
 .11 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE DISLOCATION PIT AREA = 5.63 PP

MAG-800.3 UNITS-MICRONS CAL. FACTOR- 1.375330 UNITS/PP
 FRAME AREA- 3.515625000 74

FIELD	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
1	161.96	0.005	285.823	51.747	1.007	1.314916
2	1424.82	0.041	58.233	46.852	1.034	1.777936
3	276.25	0.008	155.990	175.891	1.011	1.188781
4	864.64	0.025	107.511	79.719	1.019	4.863616
5	428.57	0.012	415.031	133.738	1.014	1.695983
6	367.86	0.010	144.909	162.478	0.012	1.862952
7	283.71	0.008	75.142	100.321	1.019	2.385495
8	921.25	0.026	61.315	62.919	0.028	2.015234
9	277.68	0.008	154.793	172.973	0.012	1.133015
10	687.32	0.020	82.454	31.878	1.022	1.859649
11	304.82	0.006	338.448	168.312	0.008	1.967335
12	148.34	0.004	26.655	349.813	0.005	1.355567
13	203.04	0.006	35.553	185.823	1.007	1.796524
14	104.11	0.003	389.004	473.485	0.004	1.381339
15	548.19	0.016	94.411	108.882	0.021	1.629913
16	1279.64	0.031	58.158	63.819	1.028	2.834763
17	266.07	0.008	229.779	332.447	1.006	3.325893
18	356.79	0.010	130.208	132.415	1.012	1.448293
19	913.73	0.026	63.004	74.435	0.026	2.523327
20	282.14	0.008	42.876	270.954	0.008	0.441621
21	1523.93	0.043	35.837	62.382	1.045	2.723767
22	234.64	0.007	115.657	114.823	0.004	2.887277
23	865.54	0.025	49.139	57.834	1.032	1.349722
24	854.11	0.024	65.149	65.697	1.026	1.989969
25	104.46	0.003	381.198	488.281	1.004	1.285437
26	1109.11	0.032	50.758	68.925	1.031	2.167333

AVERAGE						
	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
SD	557.15	0.016	168.285	182.896	1.017	1.389474
SE	413.94	0.012	111.567	103.112	1.011	1.857596
SE	87.9	0.002	21.880	26.105	1.002	1.168158

27	51.43	0.001	997.340	1065.341	1.003	1.357000
28	34.79	0.001	083.371	1065.341	1.002	1.992922
29	224.22	0.006	178.71	119.142	1.009	1.134916
30	2117.14	0.060	31.844	36.183	0.053	2.825847
31	243.57	0.007	180.288	204.694	0.007	2.701585
32	809.64	0.023	57.060	65.149	1.029	1.253184
33	270.18	0.008	179.598	206.954	1.010	1.297351
34	33.34	0.001	1250.100	1512.097	0.001	1.369243
35	77.50	0.002	1201.923	1488.795	1.001	4.359375
36	77.86	0.002	585.938	548.746	1.003	1.857955
37	65.36	0.002	781.253	837.054	1.002	1.715625
38	461.07	0.013	110.821	110.294	0.016	1.642958
39	23.75	0.001	2180.233	2038.043	0.003	1.870313
40	63.75	0.002	1102.941	860.092	0.002	2.953125
41	373.57	0.011	155.473	168.011	0.011	2.316437
42	665.00	0.019	36.009	94.032	0.020	1.863657
43	2585.71	0.074	25.437	24.446	0.071	2.406915
44	1233.75	0.035	44.622	50.512	1.036	2.015722
45	1066.07	0.038	47.759	53.817	0.035	1.774908
46	555.18	0.016	128.601	74.880	0.017	1.649716
47	1186.96	0.034	42.517	48.126	0.039	1.663228
48	126.25	0.004	618.766	704.887	0.003	2.616365
49	1371.96	0.039	34.354	38.281	1.049	1.534693
50	638.34	0.018	384.221	272.922	1.008	1.516155

AVERAGE						
	NO.	NO./AREA	MFPV	MFRH	L/A	FETA
SD	576.89	0.016	316.340	329.437	1.017	1.187124
SD	553.71	0.016	418.981	431.517	1.016	1.239591
SE	78.31	0.002	59.253	61.126	0.002	1.171768

Date: 1/22/79

MOBIL TYCO SAMPLE # 72 JPL 5-640 VRR#2 SPEC C
TWIN ONLY

OUTPUT DIVIDED BY 100

3.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE

AVERAGE TWIN AREA = 31.83 X 100

MAG-800.0 UNITS-MM CAL. FACTOR-
FRAME AREA- 0.070313

7.000375 UNITS/PP

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	4.18	59.483	15.875	1.177	1.000009
2	6.38	91.797	23.438	1.149	1.000007
3	33.18	471.838	12.500	1.349	1.000016
4	16.51	234.891	17.733	1.235	1.000012
5	13.11	186.499	18.750	1.163	1.000010
6	28.28	288.470	12.500	1.264	1.000013
7	0.00	0.000	0.000	0.000	0.000000
8	32.26	467.363	10.833	1.285	1.000018
9	19.15	399.336	17.045	1.445	1.000022
10	12.42	461.104	26.786	1.331	1.000016
11	4.50	63.955	46.875	1.141	1.000017
12	36.64	531.334	17.045	1.336	1.000027
13	1.17	13.844	187.500	1.335	1.000034
14	54.15	770.147	13.393	1.41	1.000038
15	6.67	94.815	93.750	1.269	1.000015
16	8.43	119.863	18.750	1.128	1.000013
17	1.86	26.387	187.500	1.237	1.000038
18	1.1	21.468	93.750	1.035	1.000037
19	0.00	0.000	0.000	0.000	0.000000
20	1.00	1.000	0.000	0.000	0.000000
21	0.53	7.623	187.500	1.250	1.000032
22	3.72	710.227	187.500	1.335	1.000033
23	40.97	582.753	9.868	1.485	1.000014
24	2.39	33.990	93.750	1.161	1.000015
25	21.98	312.621	62.500	1.139	1.000025
26	15.33	220.936	16.786	1.219	1.000011

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	15.57	221.504	0.000	1.169	0.000000
SE	16.50	334.721	0.000	1.143	0.000000
SE	3.24	46.332	0.000	1.028	0.000000

27	2.58	16.674	12.500	1.175	1.000016
28	7.45	135.996	6.786	1.123	1.000008
29	26.48	376.576	23.438	1.203	1.000033
30	26.92	382.237	26.786	1.213	1.000027
31	9.53	135.514	37.500	1.172	1.000021
32	20.88	296.967	13.438	1.176	1.000013
33	81.29	1156.115	6.048	1.123	1.000013
34	18.74	266.555	18.750	1.472	1.000017
35	43.62	623.321	18.750	1.083	1.000014
36	0.97	13.864	187.500	1.250	1.000034
37	0.00	0.000	0.000	0.000	0.000000
38	8.77	124.789	26.786	1.155	1.000017
39	51.96	737.498	11.929	1.512	1.000023
40	27.33	388.234	15.625	1.309	1.000014
41	37.04	526.848	10.417	1.424	1.000017
42	34.53	491.069	26.786	1.219	1.000031
43	7.70	139.574	46.875	1.191	1.000017
44	42.08	598.407	6.250	1.311	1.000009
45	51.10	726.765	10.417	1.186	1.000015
46	49.84	708.875	11.719	1.373	1.000015
47	194.65	1488.414	11.129	1.576	1.000031
48	50.47	717.820	10.417	1.501	1.000021
49	78.38	1110.496	8.523	1.838	1.000023
50	17.14	243.746	15.625	1.291	1.000019

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	24.08	342.463	0.000	1.258	0.000000
SE	23.73	337.557	0.000	1.226	0.000000
SE	3.36	47.738	0.000	1.132	0.000000

DATE 1/22/79
MOBIL TYCO SAMPLE # 72 JPL 5-640 RR#2 SPEC C
DISLOCATION PITS ONLY
0.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE DISLOCATION PIT AREA = 5.69 PP

MAG-200.0 UNITS-MICRONS CAL. FACTOR-
FRAME AREA- 3.51562500 74

1.375000 UNITS/PP

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	166.08	0.035	222.585	0.037	1.186523
3	6312.99	0.179	39.490	0.145	19.777941
3	198.59	0.036	284.491	0.037	1.746223
4	153.43	0.104	651.142	0.104	2.612035
5	253.63	0.037	261.872	0.037	2.940897
6	1677.86	0.048	52.521	0.034	4.566486
7	729.35	0.121	64.124	0.126	1.492567
8	333.74	0.009	122.073	0.014	1.112695
9	67.63	0.002	699.627	0.001	1.386161
10	23.92	0.001	1358.596	0.001	1.593753
11	93.32	0.033	520.833	0.034	1.265625
12	665.20	0.019	67.349	0.024	1.382538
13	1056.06	0.033	45.665	0.038	1.387546
14	384.53	0.111	105.513	0.116	1.156721
15	188.93	0.035	457.117	0.034	3.779297
16	433.58	0.012	94.032	0.017	1.167913
17	940.77	0.027	62.583	0.027	2.476213
18	796.84	0.023	79.114	0.022	2.623843
19	1207.73	0.034	56.374	0.036	2.533562
20	811.54	0.023	58.411	0.029	1.463726
21	549.33	0.016	95.859	0.016	2.387568
22	1948.33	0.033	39.674	0.040	1.302528
23	1498.42	0.043	34.581	0.046	2.187899
24	1312.48	0.037	40.153	0.040	2.121591
25	484.53	0.014	96.154	0.016	1.837456

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	854.77	0.024	224.121	0.021	2.692258
SE	1204.27	0.034	101.285	0.014	2.587559
SE	243.85	0.007	63.257	0.003	1.717512

26	92.39	0.033	418.527	0.034	1.898628
27	446.75	0.013	110.774	0.015	1.842622
28	270.65	0.008	203.804	0.008	2.742242
29	604.92	0.017	67.738	0.023	1.352943
30	55.54	0.012	844.595	0.012	1.234375
31	506.68	0.014	73.703	0.022	1.026384
32	1071.47	0.030	47.832	0.034	1.781763
33	312.65	0.009	132.790	0.011	1.462993
34	215.47	0.006	182.139	0.009	1.112298
35	101.23	0.003	614.839	0.003	1.893721
36	879.26	0.025	62.417	0.025	2.245595
37	621.39	0.018	84.458	0.019	1.012219
38	1489.28	0.042	32.219	0.042	2.436925
39	1208.96	0.034	42.432	0.041	1.781539
40	724.25	0.021	73.299	0.023	2.099694
41	412.83	0.012	115.172	0.014	1.814993
42	352.37	0.013	138.274	0.013	1.540727
43	2195.94	0.062	33.004	0.047	3.174399
44	502.81	0.014	91.732	0.018	1.639313
45	49.38	0.001	679.348	0.002	1.129318
46	40.91	0.001	1802.885	0.004	2.662500
47	43.86	0.001	1065.341	0.001	1.435547
48	10.32	0.000	2929.688	0.001	1.031953
49	183.63	0.015	225.361	0.017	1.119177
50	586.15	0.014	153.723	0.014	2.768182

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	685.26	0.019	315.606	0.018	2.224993
SE	940.57	0.027	518.695	0.014	2.616163
SE	133.32	0.004	73.355	0.002	1.369981

DATE 1/22/79
MOBIL TYCO SAMPLE #73 JPL 5-643 MRR42 SPEC D
TWIN ONLY
DIM OUT PUT DIVIDED BY 100
3.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN AREA = 33.26 X100

MAG-833.4 INITS-MM CAL. FACTOR- 1.000375 UNITS/PP
FRAME AREA- 0.074313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	7.77	110.450	20.833	7.212	1.000006
2	2.48	35.250	93.750	23.438	1.000005
3	5.45	77.550	18.750	12.500	1.000006
4	3.34	47.470	37.500	15.625	1.000007
5	6.58	93.530	18.750	11.719	1.000009
6	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
7	11.57	154.500	24.786	5.259	1.000008
8	43.36	615.341	14.423	2.315	1.000014
9	21.41	304.560	31.250	4.464	1.000015
10	3.35	66.010	26.786	12.500	1.000006
11	15.17	215.730	23.438	4.464	1.000008
12	13.38	193.350	31.250	4.696	1.000014
13	1.72	24.440	93.750	31.250	1.000007
14	12.46	177.190	11.719	4.808	1.000007
15	22.84	324.771	11.429	2.430	1.000012
16	1.32	14.570	187.500	62.500	1.000002
17	1.22	17.390	93.750	26.786	1.000003
18	3.93	55.930	31.250	17.145	1.000008
19	1.69	23.970	187.500	31.250	1.000007
20	1.69	23.970	62.500	26.786	1.000002
21	64.34	915.091	11.417	4.464	1.000009
22	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
23	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
24	45.60	648.691	11.429	5.682	1.000009
25	7.90	112.380	12.750	4.166	1.000006
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	12.94	171.212	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
SE	16.04	228.106	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
SE	3.21	45.621	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
26	14.67	238.620	11.429	4.696	1.000012
27	14.32	11.620	187.500	46.875	1.000016
28	2.54	43.420	62.500	15.625	1.000003
29	16.21	523.581	15.625	4.808	1.000013
30	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
31	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
32	12.76	181.421	18.750	1.808	1.000008
33	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
34	14.64	238.210	23.438	8.929	1.000012
35	5.29	75.230	31.250	5.868	1.000008
37	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
38	18.41	256.150	17.045	5.357	1.000015
39	88.47	1258.192	4.696	2.183	1.000029
40	84.34	1129.442	10.417	4.378	1.000063
41	117.88	1676.493	8.152	2.259	1.000039
42	75.35	1067.372	7.500	2.287	1.000032
43	17.28	534.161	8.929	2.183	1.000011
44	15.97	653.771	8.523	2.930	1.000022
45	6.77	26.350	31.250	8.929	1.000007
46	14.07	484.371	9.275	2.131	1.000014
47	38.86	552.721	14.423	4.538	1.000018
48	60.91	866.211	12.500	4.679	1.000026
49	63.28	903.351	4.696	1.752	1.000018
50	42.33	602.071	15.625	3.348	1.000023
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	22.14	314.947	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
SE	27.59	392.383	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
SE	3.70	55.491	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS

DATE 1/22/79
 MOBILE TYCO SAMPLE #73 JPL5-640 MTR#2 SPEC
 DISLOCATION PITS ONLY
 0.31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 5.57 PP

MAG-833.3 UNITS-MICRONS CAL. FACTOR- 1.375333 UNITS/PP
 FRAME AREA- 3.515625000 J4

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	431.22	0.012	187.876	123.193	0.011	0.952347
2	591.89	0.017	93.656	71.822	0.019	1.735064
3	689.95	0.023	64.124	75.544	0.025	1.425194
4	1465.26	0.042	74.58	55.473	0.032	1.477121
5	1122.15	0.032	53.694	62.483	0.031	2.161335
6	2239.15	0.064	26.761	27.748	0.065	0.231449
7	222.09	0.036	242.248	86.697	0.037	1.936298
8	315.58	0.039	154.959	101.183	0.040	1.765188
9	488.89	0.014	133.821	121.412	0.016	1.694837
10	272.66	0.008	178.232	37.871	0.009	1.552932
11	337.75	0.009	142.261	135.277	0.011	1.635938
12	911.54	0.025	53.663	57.657	0.033	1.583197
13	594.18	0.017	83.556	69.496	0.019	1.611448
14	185.19	0.005	585.938	446.429	0.005	1.624659
15	463.9	0.013	134.283	136.265	0.015	1.628329
16	736.88	0.023	79.991	75.544	0.022	1.159483
17	248.32	0.007	187.530	151.699	0.013	1.511453
18	13.05	0.000	906.250	332.759	0.001	1.486637
19	293.24	0.008	138.550	116.914	0.009	2.159693
20	169.31	0.005	253.003	297.619	0.005	1.467391
21	3428.40	0.098	11.394	11.232	0.083	1.216311
22	2558.55	0.073	24.338	36.755	0.073	1.683745
23	2333.63	0.066	12.28	15.988	0.052	1.912388
24	755.18	0.021	96.155	82.33	0.024	1.397651
25	759.08	0.022	101.792	78.715	0.024	1.531333

AVERAGE						
	NO.	NO./AREA	FPV	MFPH	L/A	AFETA
	862.23	0.025	182.289	53.499	0.024	1.177753
SD	857.67	0.024	748.666	116.366	0.021	0.744863
SE	171.53	0.005	149.733	23.273	0.004	1.148973

26	364.23	0.019	35.114	12.474	0.026	1.225911
27	273.90	0.008	237.944	105.142	0.008	0.119866
28	7.05	0.000	7211.538	1736.111	0.001	1.875003
29	322.05	0.009	428.182	412.996	0.004	10.271253
30	1348.32	0.038	51.790	52.639	0.031	1.595579
31	1240.74	0.035	47.372	52.521	0.036	2.238228
32	1616.93	0.046	46.835	52.934	0.034	0.942661
33	859.26	0.024	58.050	66.348	0.028	1.704291
34	3538.10	0.191	21.596	24.828	0.074	4.176792
35	468.25	0.013	166.816	171.977	0.011	2.894259
36	771.43	0.022	69.393	76.718	0.024	1.671453
37	2727.69	0.078	24.881	38.670	0.065	0.924974
38	71.60	0.003	674.839	629.195	0.003	1.197957
39	417.99	0.012	157.563	137.665	0.012	2.170377
40	56.61	0.002	919.118	1233.553	0.001	2.821289
41	262.26	0.007	383.398	317.797	0.006	2.987277
42	693.47	0.023	146.293	69.188	0.023	2.536411
43	303.88	0.009	295.142	187.509	0.009	3.188117
44	317.64	0.009	205.592	152.439	0.011	1.677256
45	285.36	0.008	295.142	192.535	0.011	2.528195
46	179.37	0.005	544.759	222.156	0.006	4.206842
47	1051.50	0.033	57.095	59.411	0.033	2.189053
48	159.26	0.005	255.450	331.147	0.007	1.209375
49	2449.13	0.071	27.164	38.487	0.063	3.139419
50	863.49	0.024	73.071	59.981	0.025	2.242188

AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	550.34	0.024	383.407	257.427	0.023	2.519536
SD	870.17	0.025	1123.785	516.776	0.021	1.382879
SE	123.06	0.004	158.503	73.083	0.003	1.195569

DATE/22/79
MOBIL TYCO #74 JPL5-640 MRR#2 SPEC E
TWIN ONLY
QTM OUTPUT DIVIDED BY 100
0.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN AREA = 31.33 X 100

MAG-800.0 UNITS-MM CAL. FACTOR- .000375 UNITS/PP
FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFRV	MPPH	L/A	FEET
1	74.18	1712.368	5.068	1.033	1.624	1.000028
2	75.75	1377.345	7.530	1.786	1.613	1.000024
3	78.43	1115.059	6.250	2.006	1.547	1.000031
4	36.68	521.633	11.719	1.167	1.291	1.000023
5	1.33	1.000	55555555	55555555	1.000	5555555555
6	0.00	0.000	55555555	55555555	1.000	5555555555
7	13.02	148.129	26.756	10.033	1.77	1.000023
8	24.54	348.967	9.866	5.859	1.224	1.000022
9	15.11	652.950	10.417	1.006	1.160	1.000017
10	88.43	1257.81	11.719	2.267	1.488	1.000032
11	137.25	1525.367	8.523	1.833	1.637	1.000043
12	22.84	1320.440	7.530	2.435	1.485	1.000041
13	116.71	1659.865	13.117	1.679	1.437	1.000057
14	111.00	1587.164	8.223	1.934	1.296	1.000123
15	91.34	1299.884	5.944	1.000	1.793	1.000037
16	118.15	1680.112	7.530	1.736	1.209	1.000065
17	101.44	1584.892	6.944	1.000	1.544	1.000070
18	98.13	1367.42	6.466	1.172	1.528	1.000033
19	116.65	1658.956	7.530	1.717	1.443	1.000086
20	121.31	1725.296	11.029	1.000	1.000	1.000059
21	101.28	1442.398	8.375	1.467	1.083	1.000053
22	75.40	1072.346	1.515	1.803	1.672	1.000024
23	87.57	1245.467	7.813	1.453	1.725	1.000032
24	64.95	123.763	6.006	1.000	1.000	1.000032
25	100.16	1334.091	8.152	1.000	1.000	1.000037

	NO.	NO./AREA	MFRV	MPPH	L/A	FEET
	77.79	1106.353	55555555	55555555	1.476	5555555555
SD	36.95	525.513	55555555	55555555	1.226	5555555555
SE	7.39	105.102	55555555	55555555	0.145	5555555555

26	107.38	1527.185	13.393	2.717	1.432	1.000068
27	65.81	936.031	11.329	1.464	1.277	1.000072
28	31.73	451.203	11.029	3.989	1.301	1.000023
29	19.62	278.992	37.500	11.719	1.107	1.000043
30	35.97	511.636	46.875	6.040	1.181	1.000032
31	36.68	521.633	14.423	4.161	1.272	1.000023
32	3.23	45.893	46.875	11.719	1.007	1.000002
33	0.00	0.000	55555555	55555555	1.000	5555555555
34	7.16	131.782	18.750	11.329	1.120	1.000011
35	61.16	855.635	37.500	13.393	1.299	1.000132
36	43.35	616.599	17.500	9.375	1.123	1.000064
37	3.93	55.080	62.500	20.833	1.059	1.000099
38	2.52	35.896	187.500	15.625	1.069	1.000004
39	5.30	15.428	46.875	12.500	1.096	1.000028
40	23.66	396.713	20.833	3.837	1.291	1.000013
41	0.00	0.000	55555555	55555555	1.000	5555555555
42	1.15	16.358	93.750	46.875	1.229	1.000035
43	41.57	591.154	18.750	3.676	1.285	1.000023
44	19.49	277.174	37.500	1.573	1.001	1.000014
45	2.72	38.623	46.875	12.500	1.096	1.000014
46	0.00	0.000	55555555	55555555	1.000	5555555555
47	0.00	0.000	55555555	55555555	1.000	5555555555
48	15.24	216.741	17.045	1.464	1.227	1.000017
49	30.29	430.756	15.625	2.568	1.405	1.000013
50	6.68	94.966	62.500	2.000	1.139	1.000017

	NO.	NO./AREA	MFRV	MPPH	L/A	FEET
	51.11	712.701	55555555	55555555	1.117	5555555555
SD	42.21	601.391	55555555	55555555	1.242	5555555555
SE	5.97	94.908	55555555	55555555	1.134	5555555555

DATE 1/22/79

MOBIL TYCO #74 JPL5-643 WRR#2 SPEC E
DISLOCATION PITS ONLY

0.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE

AVERAGE PIT AREA = 3.25 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR-
FRAME AREA- 3.515625000 14.

1.375000 UNITS/PP

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	264.38	0.008	261.872	0.008	2.243534
2	1756.01	0.050	41.759	0.045	2.764226
3	2855.34	0.081	24.144	0.066	2.876382
4	1175.43	0.033	49.761	0.032	2.116578
5	2370.29	0.059	33.747	0.046	3.481679
6	1652.76	0.047	36.267	0.053	2.259635
7	2624.86	0.007	267.094	0.009	1.865986
8	3304.29	0.009	156.511	0.013	1.425987
9	34.95	0.031	1065.341	0.001	1.240757
10	575.81	0.016	116.027	0.014	2.911788
11	17.52	0.000	1994.581	0.001	2.995192
12	198.67	0.006	263.343	0.007	1.767131
13	2.17	0.000	31258.000	0.000	1.546875
14	552.19	0.016	117.776	0.013	2.111999
15	32.57	0.001	966.495	0.002	1.717334
16	180.57	0.005	648.766	0.005	5.127494
17	19.35	0.001	1736.011	0.001	0.733125
18	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
19	76.76	0.002	660.211	0.003	1.770996
20	111.81	0.003	446.429	0.005	1.528646
21	39.05	0.001	1053.371	0.002	0.923661
22	210.29	0.006	532.793	0.006	2.522479
23	136.57	0.004	346.973	0.004	2.153779
24	71.34	0.002	689.338	0.002	1.195313
25	669.03	0.019	123.355	0.015	1.773259

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	531.02	0.015	SSSSSSSSSS	0.014	SSSSSSSSSSSS
SE	749.27	0.021	SSSSSSSSSS	0.018	SSSSSSSSSSSS
SE	149.97	0.014	SSSSSSSSSS	0.014	SSSSSSSSSSSS

26	92.95	0.003	483.247	0.003	1.715625
27	391.62	0.011	109.012	0.016	1.366822
28	353.48	0.013	147.638	0.011	1.748311
29	436.67	0.012	127.725	0.012	1.976465
30	1397.71	0.040	37.441	0.046	1.482624
31	1279.01	0.036	2.498	0.029	2.934345
32	167.05	0.005	876.409	0.006	1.343522
33	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
34	969.14	0.028	72.787	0.023	2.318987
35	150.10	0.004	360.577	0.004	1.761161
36	162.48	0.005	373.506	0.004	1.966445
37	67.62	0.002	532.670	0.003	1.868722
38	498.67	0.014	99.111	0.012	1.363542
39	1615.81	0.046	62.292	0.025	2.143245
40	573.14	0.019	75.653	0.023	1.353459
41	183.81	0.005	337.342	0.007	2.665211
42	0.19	0.001	2533.784	0.001	2.876838
43	106.10	0.003	387.397	0.005	1.955221
44	112.95	0.003	2604.167	0.001	2.847656
45	678.18	0.019	103.135	0.016	2.933252
46	472.76	0.013	141.433	0.011	2.335354
47	256.08	0.007	180.288	0.009	1.332967
48	3332.00	0.096	23.75	0.079	2.492727
49	4010.67	0.014	15.828	0.003	2.731553
50	678.06	0.019	61.463	0.021	2.382281

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	621.43	0.018	SSSSSSSSSS	0.017	SSSSSSSSSSSS
SE	857.23	0.024	SSSSSSSSSS	0.021	SSSSSSSSSSSS
SE	121.03	0.003	SSSSSSSSSS	0.003	SSSSSSSSSSSS

DATE 1/22/79
MOBIL TYCO #75 JPL 5-643 MRR#2 SPEC F
TWINN ONLY
QTM OUTPUT DIVIDED BY 100
0.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE TWIN AREA = 31.37 X 100

AG-800.0 UNITS-MM CAL. FACTOR-1 1.000375 UNITS/PP
FRAME AREA- 0.070313

FIELD	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1	50.75	721.765	20.833	6.466	1.192	1.000045
2	4.91	69.819	62.500	14.423	0.383	1.000011
3	1.88	26.749	62.500	17.045	0.369	1.000003
4	15.17	215.804	31.250	8.152	0.144	1.000013
5	72.14	1025.977	17.145	2.641	0.381	1.000029
6	83.07	1121.483	13.393	2.131	0.512	1.000028
7	73.78	1148.192	10.417	2.679	0.389	1.000033
8	27.89	396.699	26.786	7.500	0.157	1.000041
9	51.48	732.193	13.393	2.177	0.517	1.000019
10	34.11	1203.524	9.868	3.324	0.376	1.000047
11	36.63	521.469	13.393	1.409	0.314	1.000020
12	25.14	171.764	13.393	0.233	0.344	1.000019
13	22.06	313.732	9.375	0.233	0.323	1.000019
14	34.36	488.733	9.375	3.472	0.365	1.000014
15	131.45	1863.805	10.417	2.614	0.456	1.000064
16	26.59	378.111	26.786	0.289	0.337	1.000015
17	49.11	732.724	11.719	2.717	0.405	1.000020
18	16.09	521.829	8.929	2.679	0.473	1.000016
19	17.25	242.553	17.145	0.608	0.243	1.000008
20	33.25	472.865	6.248	0.614	0.427	1.000011
21	19.25	273.236	15.625	0.696	0.192	1.000017
22	3.86	54.858	37.513	15.625	0.377	1.000036
23	43.33	573.513	14.423	0.472	0.323	1.000018
24	56.06	832.841	0.417	1.736	0.643	0.000016
25	70.74	1006.128	0.523	1.551	0.762	1.000022

AVERAGE

	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
SD	42.35	619.475	12.288	1.087	0.336	1.000021
SE	29.81	423.929	14.815	4.291	0.168	1.000014
SE	5.06	54.786	0.963	0.350	0.334	1.000033

26	123.11	1752.276	11.719	0.348	0.363	1.000079
27	125.57	1785.825	13.417	2.717	0.483	1.000069
28	30.83	438.479	3.38	15.625	0.099	1.000068
29	66.75	949.357	11.719	0.289	0.357	0.000042
30	1.82	25.842	11.257	26.786	0.253	1.000072
31	0.10	0.300	00000000	00000000	0.100	00000000
32	0.00	0.100	00000000	00000000	0.100	00000000
33	1.75	24.935	62.500	1.250	0.343	1.000034
34	7.78	110.622	20.833	13.393	0.099	0.000034
35	6.76	96.114	0.786	7.813	0.147	1.000036
36	7.24	102.915	18.750	13.393	0.109	1.000036
37	4.75	67.552	26.786	10.417	0.117	0.000034
38	4.46	63.472	31.250	11.729	0.131	1.000035
39	1.18	16.775	93.750	46.875	0.029	1.000035
40	13.42	148.252	31.250	0.929	0.133	1.000011
41	15.43	219.431	11.719	0.515	0.221	0.000011
42	6.35	97.475	31.250	7.813	0.141	0.000006
43	2.10	32.643	93.750	17.045	0.369	1.000003
44	14.73	199.483	17.045	7.212	0.171	0.000009
45	0.80	0.300	00000000	00000000	0.300	00000000
46	0.30	0.000	00000000	00000000	0.300	00000000
47	0.51	7.354	00000000	46.875	0.024	0.000012
48	6.76	86.143	17.045	17.145	0.193	1.000013
49	0.43	0.100	00000000	00000000	0.100	00000000
50	1.63	23.122	37.50	17.045	0.375	1.000012

AVERAGE

	NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
SD	30.11	429.695	00000000	00000000	0.226	00000000
SE	34.55	191.352	00000000	00000000	0.183	00000000
SE	0.89	69.488	00000000	00000000	0.126	00000000

DATE 1/22/79
MOBIL TYCO #75 UPL 5-649 MRR42 SPEC F
DISLOCATION PITS ONLY
0.31 MM STEP SIZE
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
AVERAGE PIT AREA = 5.39 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375000 UNITS/PP
FRAME AREA- 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	648.79	15.318	117.776	1.318	1.525456
2	663.18	15.319	117.776	1.316	1.525473
3	2235.62	15.319	117.776	1.316	1.525473
4	213.73	15.319	117.776	1.316	1.525473
5	256.22	15.319	117.776	1.316	1.525473
6	654.36	15.319	117.776	1.316	1.525473
7	362.71	15.319	117.776	1.316	1.525473
8	133.77	15.319	117.776	1.316	1.525473
9	4136.12	15.319	117.776	1.316	1.525473
10	314.66	15.319	117.776	1.316	1.525473
11	480.89	15.319	117.776	1.316	1.525473
12	453.28	15.319	117.776	1.316	1.525473
13	275.70	15.319	117.776	1.316	1.525473
14	469.76	15.319	117.776	1.316	1.525473
15	655.47	15.319	117.776	1.316	1.525473
16	59.37	15.319	117.776	1.316	1.525473
17	2334.14	15.319	117.776	1.316	1.525473
18	1228.94	15.319	117.776	1.316	1.525473
19	0.00	15.319	117.776	1.316	1.525473
20	682.75	15.319	117.776	1.316	1.525473
21	731.91	15.319	117.776	1.316	1.525473
22	991.65	15.319	117.776	1.316	1.525473
23	1148.32	15.319	117.776	1.316	1.525473
24	438.03	15.319	117.776	1.316	1.525473
25	228.94	15.319	117.776	1.316	1.525473

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	793.61	15.319	117.776	1.316	1.525473
SE	884.33	15.319	117.776	1.316	1.525473
SE	176.87	15.319	117.776	1.316	1.525473

26	15.77	15.319	117.776	1.316	1.525473
27	16.73	15.319	117.776	1.316	1.525473
28	18.55	15.319	117.776	1.316	1.525473
29	182.56	15.319	117.776	1.316	1.525473
30	205.94	15.319	117.776	1.316	1.525473
31	2439.33	15.319	117.776	1.316	1.525473
32	974.40	15.319	117.776	1.316	1.525473
33	3128.20	15.319	117.776	1.316	1.525473
34	4165.31	15.319	117.776	1.316	1.525473
35	402.97	15.319	117.776	1.316	1.525473
36	766.23	15.319	117.776	1.316	1.525473
37	402.43	15.319	117.776	1.316	1.525473
38	574.21	15.319	117.776	1.316	1.525473
39	159.93	15.319	117.776	1.316	1.525473
40	0.00	15.319	117.776	1.316	1.525473
41	387.57	15.319	117.776	1.316	1.525473
42	868.19	15.319	117.776	1.316	1.525473
43	471.06	15.319	117.776	1.316	1.525473
44	1173.47	15.319	117.776	1.316	1.525473
45	685.93	15.319	117.776	1.316	1.525473
46	1281.26	15.319	117.776	1.316	1.525473
47	1459.18	15.319	117.776	1.316	1.525473
48	1603.53	15.319	117.776	1.316	1.525473
49	137.85	15.319	117.776	1.316	1.525473
50	934.32	15.319	117.776	1.316	1.525473

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	842.35	15.319	117.776	1.316	1.525473
SE	949.81	15.319	117.776	1.316	1.525473
SE	134.32	15.319	117.776	1.316	1.525473

DATE 1/22/79
 MOBIL TYCO # 76 JPL 5-640 MRR#2 SPEC B
 TWINS ONLY
 BTM OUTPUT DIVIDED BY 100
 0.31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF TH SAMPLE
 AVERAGE TWIN AREA = 33.5 X 100

MAG-E30.3 UNITS-MM CAL. FACTOR- 0.0375 UNITS/PP
 FRAME AREA- 1437313

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	31.32	411.22	1.253	8.44	1.136	1.000033
2	3.15	14.765	62.33	13.417	1.137	1.000035
3	1.97	27.978	35555555	11.253	1.135	1.000038
4	0.48	4.033	55555555	55555555	1.130	55555555
5	6.16	91.862	17.045	12.33	1.139	1.000039
6	18.92	411.379	93.753	6.786	1.148	1.000124
7	111.74	1589.158	9.375	1.769	1.116	1.000343
8	133.90	1477.712	8.929	1.717	1.145	1.000351
9	139.93	1563.512	8.929	1.136	1.140	1.000323
10	19.51	846.339	15.025	1.33	1.341	1.000243
11	71.78	1313.344	11.719	1.679	1.124	1.000338
12	77.77	1136.369	8.152	1.633	1.183	1.000322
13	76.75	1091.614	8.466	1.234	1.185	1.000314
14	138.82	1547.658	8.152	1.589	1.196	1.000327
15	66.66	947.993	7.212	1.116	1.163	1.000311
16	93.92	1293.156	8.152	1.258	1.183	1.000318
17	6.49	83.339	6.944	1.995	1.171	1.000317
18	59.4	846.335	9.868	1.717	1.127	1.000321
19	85.87	936.801	8.340	1.155	1.176	1.000322
20	63.13	807.424	8.152	1.410	1.173	1.000314
21	133.79	1433.413	8.123	1.410	1.187	1.000327
22	121.57	1729.349	8.929	1.633	1.172	1.000335
23	73.08	1339.385	7.530	1.512	1.177	1.000326
24	71.97	1022.631	8.152	1.524	1.115	1.000319
25	72.85	1036.124	12.533	1.974	1.123	1.000322

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	65.38	929.844	55555555	55555555	1.126	55555555
SD	35.41	533.589	55555555	55555555	1.333	55555555
SE	7.08	133.718	55555555	55555555	1.161	55555555

26	81.41	1157.829	8.152	1.736	1.135	1.000327
27	52.25	74.638	26.786	8.323	1.144	1.000326
28	0.33	0.333	55555555	55555555	1.137	55555555
29	42.39	632.929	31.253	5.682	1.192	1.000336
30	26.75	383.593	23.438	2.976	1.344	1.000314
31	19.23	145.486	37.533	7.813	1.139	1.000315
32	16.69	237.348	46.875	9.868	1.147	1.000318
33	39.11	556.299	7.530	2.562	1.135	1.000315
34	7.41	135.384	118.753	8.523	1.155	1.000316
35	1.03	1.033	55555555	55555555	1.130	55555555
36	42.98	611.322	26.786	3.827	1.283	1.000326
37	97.73	1389.581	9.868	1.995	1.544	1.000338
38	7.67	109.115	23.438	8.523	1.144	1.000318
39	6.23	88.131	31.253	6.253	1.176	1.000307
40	13.18	187.454	14.423	6.944	1.195	1.000311
41	3.66	7.927	187.533	37.533	1.329	1.000332
42	2.95	41.967	93.753	18.753	1.161	1.000316
43	11.67	166.394	37.533	8.152	1.139	1.000317
44	39.57	562.827	14.423	2.435	1.137	1.000317
45	11.13	148.284	46.875	4.949	1.237	1.000317
46	7.34	134.452	93.753	17.145	1.147	1.000314
47	1.11	1.111	55555555	55555555	1.133	55555555
48	3.18	43.932	46.875	15.625	1.139	1.000317
49	1.21	17.253	93.753	11.253	1.137	1.000315
50	2.52	35.935	46.875	37.533	1.143	1.000311

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
	42.22	413.411	55555555	55555555	1.156	55555555
SD	38.42	546.355	55555555	55555555	1.268	55555555
SE	5.13	77.266	55555555	55555555	1.142	55555555

DATE 1/22/79
 MO31L TYCO #76 JPL 5-641 MRR#2 SPEC G
 DISLOCATION PITS ONLY
 0.31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT AREA = 4.5 PP

MAG-800.4 UNITS-MICRONS GAL. FACTOR-
 FRAME AREA- 3.515623300 HA

1.375000 UNITS/PP

FIELD NO.	NO./AREA	MPV	MPH	L/A	AREA
1	1792.00	0.051	45.191	0.036	2.475983
2	1711.03	0.049	34.454	0.046	1.564961
3	3219.11	0.092	22.493	0.070	2.472231
4	1128.03	0.034	52.225	0.030	1.965135
5	592.22	0.017	86.565	0.018	1.296767
6	109.78	0.003	1233.553	0.003	1.543750
7	674.00	0.017	111.342	0.018	1.745291
8	152.22	0.004	1422.455	0.001	7.479856
9	241.56	0.007	236.954	0.007	1.222375
10	139.78	0.003	841.908	0.003	1.417733
11	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSS
12	12.00	0.000	2533.784	0.001	1.265425
13	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSS
14	78.00	0.002	732.422	0.002	1.233897
15	67.33	0.002	956.633	0.002	1.578125
16	88.89	0.003	822.768	0.002	1.714545
17	398.44	0.011	223.588	0.009	1.966364
18	57.33	0.002	913.194	0.002	1.173363
19	33.56	0.001	1323.423	0.001	1.732223
20	575.33	0.016	116.315	0.017	1.329752
21	28.00	0.001	1129.18	0.001	1.414522
22	739.33	0.023	87.417	0.019	1.733138
23	97.33	0.003	372.024	0.004	1.947506
24	176.44	0.005	42.476	0.009	2.542554
25	171.11	0.005	93.835	0.005	1.691895

AVERAGE

NO.	NO./AREA	MPV	MPH	L/A	AREA
SD	489.72	0.014	SSSSSSSSSS	0.012	SSSSSSSSSS
SE	744.7	0.021	SSSSSSSSSS	0.017	SSSSSSSSSS
SE	148.9	0.004	SSSSSSSSSS	0.003	SSSSSSSSSS

26	400.89	0.011	144.576	0.011	1.423553
27	1852.33	0.053	41.194	0.053	1.432725
28	459.11	0.013	128.374	0.012	1.862383
29	363.6	0.013	219.342	0.007	2.556257
30	823.67	0.023	75.183	0.022	1.659195
31	1166.23	0.033	46.483	0.031	1.239167
32	317.78	0.009	139.717	0.011	1.196987
33	2349.33	0.058	35.112	0.053	1.371635
34	651.33	0.024	66.442	0.024	1.539241
35	138.22	0.003	393.932	0.004	1.787177
36	186.33	0.005	293.887	0.006	1.279392
37	2993.22	0.085	23.760	0.078	1.818129
38	1937.78	0.055	14.253	0.046	1.114224
39	3527.11	0.100	11.641	0.081	1.394853
40	665.33	0.019	79.524	0.020	1.547939
41	1089.78	0.031	59.411	0.028	1.352455
42	211.11	0.006	278.193	0.007	1.593492
43	11.78	0.003	286.585	0.001	1.573317
44	114.44	0.003	381.198	0.004	1.287924
45	4857.6	0.139	19.473	0.085	1.794965
46	1494.23	0.043	37.863	0.042	1.443677
47	2421.56	0.069	32.473	0.052	1.746532
48	4916.78	0.143	16.128	0.095	1.422339
49	3172.89	0.090	19.187	0.055	1.547427
50	1713.78	0.049	43.479	0.038	2.745573

AVERAGE

NO.	NO./AREA	MPV	MPH	L/A	AREA
SD	998.04	0.028	SSSSSSSSSS	0.023	SSSSSSSSSS
SD	1238.59	0.035	SSSSSSSSSS	0.026	SSSSSSSSSS
SE	175.18	0.005	SSSSSSSSSS	0.004	SSSSSSSSSS

DATE 1/22/79
 MOBIL TYCO # 77 JPL 5-640 MRR#2 SPEC H
 TWINS ONLY
 QTM OUTPUT DIVIDED BY 100
 0.31 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE TWIN AREA = 32.6 X 100

MAG-800.0 UNITS-MM CAL. FACTOR- 4.000375 UNITS/PP
 FRAME AREA- 1.170319

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	13.64	151.384	31.259	6.515	1.195	1.000012
2	18.16	258.269	17.145	4.888	1.243	1.000012
3	54.36	773.161	9.375	3.183	1.536	1.000019
4	27.67	393.511	14.423	3.373	1.453	1.000010
5	68.77	978.115	11.719	4.464	1.393	1.000053
6	66.27	951.157	6.944	3.467	1.491	1.000028
7	2.94	11.581	62.500	17.045	1.161	1.000005
8	43.71	621.677	8.523	1.894	1.573	1.000012
9	75.67	1076.264	8.152	1.895	1.568	1.000029
10	56.99	813.579	8.929	2.287	1.499	1.000024
11	1.32	18.759	187.500	23.438	1.148	1.000016
12	44.57	633.892	9.375	1.289	1.371	1.000029
13	42.18	599.864	12.500	1.606	1.336	1.000032
14	7.94	112.993	16.786	6.257	1.176	1.000007
15	19.32	412.796	10.417	2.757	1.389	1.000013
16	69.32	1432.262	5.375	1.974	1.576	1.000045
17	84.2	1236.271	10.417	1.524	1.791	1.000026
18	43.71	578.923	6.948	1.131	1.616	1.000012
19	13.16	613.834	6.145	2.568	1.91	1.000018
20	69.23	984.649	7.113	2.679	1.56	1.000024
21	37.18	533.119	14.423	3.124	1.347	1.000025
22	131.4	1869.393	11.229	3.906	1.315	1.000001
23	114.63	1631.323	6.466	1.379	1.73	1.000042
24	89.15	1266.476	7.813	1.233	1.492	1.000051
25	59.65	993.374	6.254	1.736	1.648	1.000029

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	53.31	756.744	20.045	1.332	1.423	1.000035
SE	33.2	476.771	36.029	1.526	1.187	1.000056
SE	6.73	95.354	17.206	1.985	1.137	1.000011

26	80.11	142.143	4.375	1.144	1.477	1.000041
27	27.94	1257.773	8.523	2.441	1.432	1.000058
28	100.74	1432.593	5.152	1.537	1.712	1.000042
29	81.26	1155.665	12.500	2.717	1.421	1.000047
30	58.22	828.030	8.523	1.344	1.477	1.000021
31	1.03	1.000	1000000000	0000000000	1.000	0000000000
32	0.10	1.000	0000000000	0000000000	1.000	0000000000
33	1.58	1.289	0000000000	2.600	1.019	0.000003
34	1.7	5.269	187.100	11.250	1.337	1.000032
35	0.00	1.000	0000000000	0000000000	1.000	0000000000
36	12.12	172.324	6.944	1.406	1.138	1.000036
37	21.74	999.77	5.152	1.125	1.424	1.000038
38	1.33	33.158	11.250	18.750	1.059	1.000014
39	2.65	1.573	187.500	15.625	1.169	1.000034
40	2.15	33.339	46.875	17.045	1.175	1.000035
41	0.10	1.000	0000000000	0000000000	1.000	0000000000
42	0.00	1.000	0000000000	0000000000	1.000	0000000000
43	0.10	1.000	0000000000	0000000000	1.000	0000000000
44	0.00	1.000	0000000000	0000000000	1.000	0000000000
45	0.00	0.000	0000000000	0000000000	1.000	0000000000
46	0.33	11.749	187.500	16.875	1.129	1.000032
47	0.00	1.000	0000000000	0000000000	1.000	0000000000
48	5.31	75.374	37.500	18.750	1.172	1.000024
49	6.29	89.434	1.250	9.68	1.123	1.000019
50	1.72	24.431	187.500	15.625	1.167	1.000034

AVERAGE

	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	35.0	513.69	0000000000	0000000000	1.188	0000000000
SD	37.27	533.312	0000000000	0000000000	1.239	0000000000
SE	5.27	74.955	0000000000	0000000000	1.134	0000000000

DATE 1/22/79
 MODEL TYCO # 77 PL 5-640 MRR#2 SPEC H
 DISLOCATION PITS ONLY
 0.1 MM STEP SIZE
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE
 AVERAGE PIT SIZE = 4. PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR- 1.375333 UNITS/PP
 FRAME AREA- 3.15625000 34

FIELD	NO.	NO./AREA	MFPV	MFPH	L/A	FETA
1	393.56	0.011	198.237	224.820	0.009	2.184622
2	366.67	0.010	218.323	225.361	0.008	0.353343
3	715.33	0.020	84.383	100.482	0.019	1.539730
4	102.67	0.003	382.98	637.755	0.003	1.624219
5	626.0	0.017	97.453	111.607	0.016	1.415371
6	62.44	0.015	113.54	17.781	0.016	1.796762
7	596.44	0.017	128.01	134.51	0.014	1.976113
8	257.78	0.007	232.47	289.158	0.008	1.896832
9	444.00	0.013	139.925	144.53	0.013	1.440865
10	436.02	0.012	192.981	149.522	0.011	0.303343
11	370.22	0.011	29.779	78.197	0.009	1.492354
12	448.67	0.013	153.028	146.714	0.011	1.971620
13	412.44	0.012	191.27	224.523	0.011	2.533981
14	980.7	0.028	38.231	66.331	0.025	1.831614
15	235.78	0.007	39.389	289.152	0.004	1.572468
16	55.36	0.002	768.443	997.343	0.002	1.171875
17	273.02	0.018	23.558	248.074	0.007	1.568837
18	2076.00	0.059	33.340	34.569	0.053	1.895698
19	289.11	0.008	201.180	242.876	0.008	1.648226
20	587.11	0.017	114.197	122.229	0.014	0.718277
21	0.0	0.000	55555555	55555555	0.000	5555555555
22	4.22	0.000	5595.429	23437.500	0.000	0.671875
23	516.89	0.015	137.565	138.889	0.012	2.196755
24	135.36	0.004	651.342	608.766	0.003	3.177383
25	611.56	0.017	154.474	79.114	0.014	2.931818

	NO.	NO./AREA	MFPV	MFPH	L/A	FETA
	459.00	0.013	55555555	55555555	0.012	5555555555
SD	401.85	0.011	55555555	55555555	0.010	5555555555
SE	80.37	0.002	55555555	55555555	0.002	5555555555

26	695.33	0.020	101.902	121.912	0.016	2.391389
27	38.67	0.001	1820.423	1644.737	0.001	1.287829
28	72.67	0.002	679.348	1644.737	0.002	1.916116
29	186.02	0.005	324.394	397.246	0.005	1.354526
30	742.02	0.021	96.949	132.042	0.016	1.283136
31	444.67	0.013	162.478	192.505	0.009	3.364627
32	1934.44	0.055	35.579	45.050	0.041	2.560964
33	413.36	0.012	196.137	166.519	0.010	2.643466
34	1022.0	0.029	59.298	3.185	0.025	2.134437
35	215.33	0.006	223.073	323.276	0.005	1.724881
36	117.78	0.003	420.044	436.447	0.003	1.693892
37	48.30	0.001	1171.075	1186.709	0.001	2.761364
38	13.67	0.000	5514.706	4076.087	0.000	1.964236
39	687.33	0.020	96.154	114.190	0.018	1.543586
40	1278.00	0.036	47.348	51.034	0.036	1.681363
41	4257.33	0.121	17.442	20.528	0.093	2.524924
42	316.67	0.009	167.411	229.779	0.017	1.591400
43	831.78	0.024	76.344	121.912	0.018	2.567637
44	385.33	0.011	196.041	183.105	0.009	2.332331
45	2282.00	0.065	30.697	35.073	0.053	2.214844
46	244.00	0.007	307.377	355.114	0.006	2.005276
47	554.89	0.016	122.389	145.575	0.012	2.194629
48	2530.67	0.072	31.491	34.228	0.050	2.895909
49	870.22	0.025	78.452	92.914	0.021	2.247704
50	892.00	0.025	67.331	83.631	0.021	1.939755

	NO.	NO./AREA	MFPV	MFPH	L/A	FETA
	1653.94	0.019	55555555	55555555	0.015	5555555555
SD	763.19	0.022	55555555	55555555	0.017	5555555555
SE	137.92	0.003	55555555	55555555	0.002	5555555555