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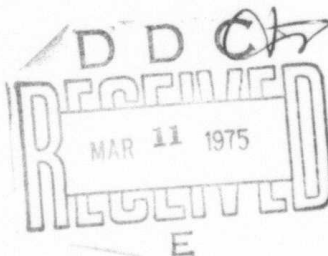
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INTEGRATED CIRCUIT ELECTROMAGNETIC SUSCEPTIBILITY INVESTIGATION - PHASE II

PACKAGE EFFECTS STUDY

MCDONNELL DOUGLAS ASTRONAUTICS COMPANY - EAST



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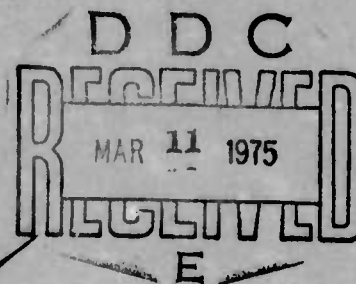
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**INTEGRATED CIRCUIT
ELECTROMAGNETIC
SUSCEPTIBILITY INVESTIGATION
PHASE II.**

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PACKAGE EFFECTS STUDY.

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PREFACE

This document is one of eight task-oriented reports prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory, Dahlgren, Virginia 22448.

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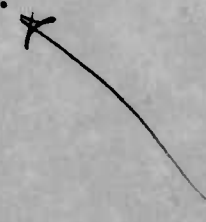
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1. INTRODUCTION AND SUMMARY



The purpose of the Integrated Circuit Electromagnetic Susceptibility Investigation is to provide detailed information which can be readily applied by electronic system designers in their task of eliminating electromagnetic vulnerability from military systems. In view of the availability of different package styles to the designer, it was deemed feasible that package differences might exist which could be easily exploited in providing extra system protection at relatively low cost. This part of the program was designed to briefly explore that possibility by comparing the measured susceptibilities of similar devices in each of the flat pack, DIP, and T0-5 types of packages.

Loss measurements on specially fabricated short-circuited packages were performed with the conclusion that the loss of the packages was not significant. To compare reflection properties, susceptibilities of 7400 NAND gates in DIP and flat pack packages, and 741 op amps in T0-5 and flat pack packages were compared at four frequencies: .22, .91, 3.0, and 5.6 GHz. The small differences that were found to exist depend on frequency such that the package which is slightly better at the low frequency end is slightly worse at the high frequency end. In any case, the added protection that might be available by proper choice between these package styles is not believed to be significant to the system hardening problem.



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2. THEORY

Since integrated circuit packages are not designed with microwave transmission properties in mind, it is reasonable to suppose that usefully large reflection coefficients or absorption factors might exist, and that these microwave properties might vary among the many package styles available to the end-user. Hence, a simple method would exist to achieve some degree of relative system hardening.

2.1 Nature of Possible Hardness in Packages - In the course of our integrated circuit electromagnetic susceptibility investigation, we have measured many properties of representative integrated circuits exposed to microwave stimulus [1, 2, 3]. Among these properties, we have monitored the fraction of incident microwave energy which is actually delivered to the packaged IC under test by means of a sophisticated and carefully calibrated measurement system [4]. We have observed that the ratio of incident power to absorbed power varies from approximately 2 dB to more than 20 dB depending upon such parameters as frequency, incident power level, injection port, and bias state of the IC under test.

2.2 Reflective Loss - Reflective loss arises from the microwave mismatch provided by the packaged IC to the non-ideal transmission line represented by system cabling. In theory, any reflection can be tuned-out by proper conditions on the transmission line, so that a knowledge of transmission properties of typical aerospace cables is required to estimate what net effect any particular packaged IC would have on overall reflection loss. The study of the microwave properties of typical system cabling is a field in itself, but tuning factors as great as 35 dB have been demonstrated [5] over a single cable parameter (the aspect angle to the interfering transmitter). In fact, it is probable that a packaged IC showing a ratio of incident power to absorbed power of less than 20 dB in the special test fixture used in this investigation will appear matched at some combination of aspect angle and frequency.

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2.3 Absorptive Loss - Absorptive loss results when energy is dissipated in the package as it is delivered to the chip. It is not possible to tune out such losses and, when they are present they may be relied upon to provide protection to the chip.

It is difficult to separate the losses in the package from the losses in the chip when a measurement is made on a packaged IC. Accordingly, a special dummy package in which the chip is replaced with a shorting plate (lossless) is used. To make the package-loss measurement, the principle of conservation of energy is used by injecting a carefully controlled stimulus, measuring what comes out of the package, and accounting for known losses. Such measurements can be made to an accuracy of ± 0.5 dB.

3. MEASUREMENTS

To determine whether potentially significant differences in either reflective loss or absorptive loss exist in representative package types, measurements were made on a 7400 2-input gate in a DIP package and a 741 operational amplifier in a TO-5 package for comparison to previously measured data on these two devices in a flat pack package. Absorptive loss measurements were also made on specially fabricated dummy TO-5 and DIP packages. See figures 1, 2, and 3 for outline drawings of the three packages used in this study.

3.1 Reflective Loss Measurements - Integrated circuit susceptibility measurements are made with an automated test system [4] which permits many parameters to be monitored while the device under test is being exposed to the RF stimulus. Figure 4 shows one of the special test fixtures used for these measurements and figure 5 shows a block diagram of the system as configured for the 7400 NAND gate measurements. Table 1 shows a typical data sheet produced by the system. Of particular interest here is the parameter "C.F." (calibration factor) which gives the ratio of the incident power to the power absorbed in the device expressed in decibels. Thus,

$$P_{\text{absorbed}} \text{ (dBm)} = P_{\text{incident}} \text{ (dBm)} - \text{C.F. (dB)}$$

There is, of course, a direct relationship between the calibration factor and the magnitude of the microwave impedance of the device.

In the course of detailed investigations into the susceptibility mechanisms of the 7400 NAND gate and the 741 operational amplifier, a complete record of the microwave absorption characteristics of these devices in the flat pack package was built up. To determine whether any significant differences exist among the different package styles available to the equipment designer, new sample lots of 7400 gates in 14 pin DIP packages and 741 operational amplifiers in 8-pin TO-5 packages were

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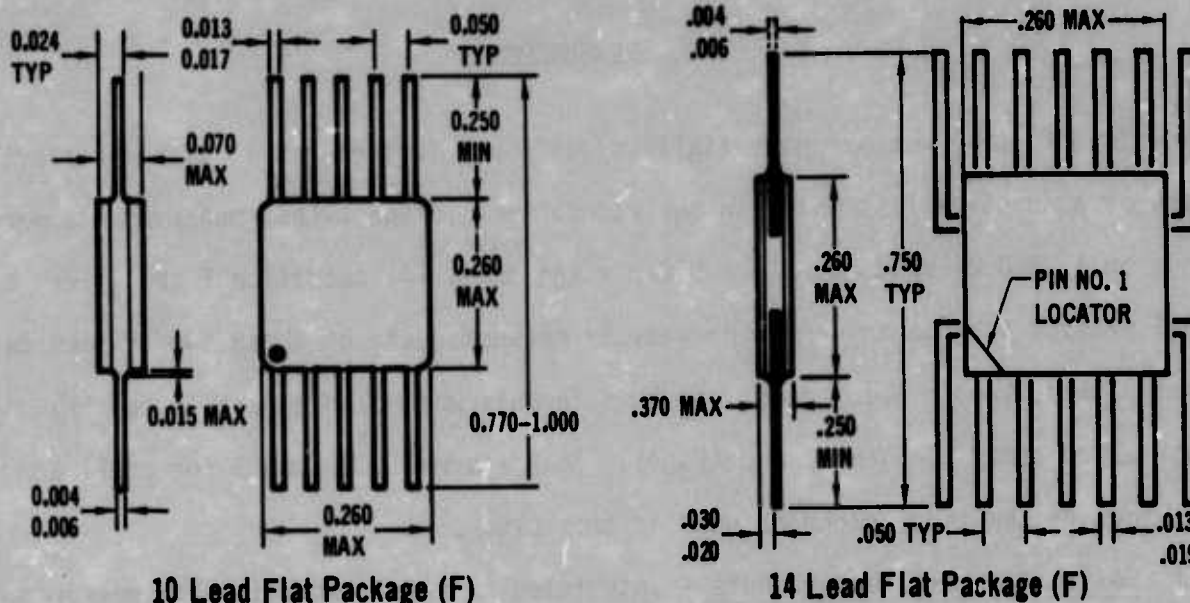


FIGURE 1 FLAT PACKAGES

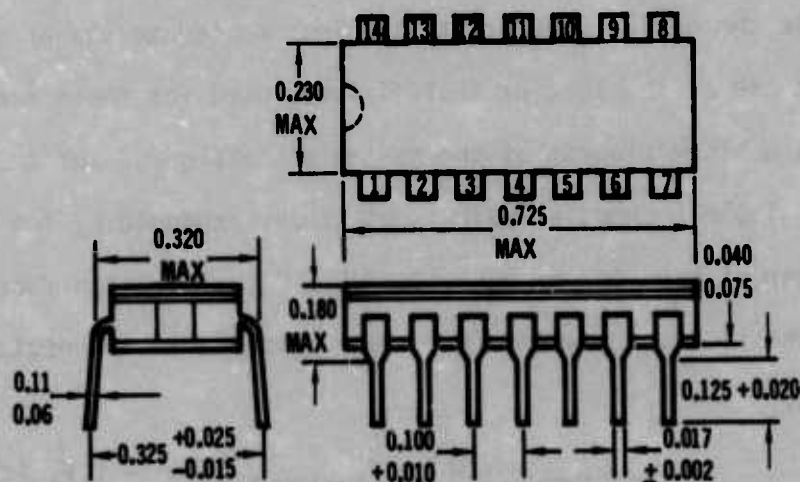


FIGURE 2 DIP PACKAGE

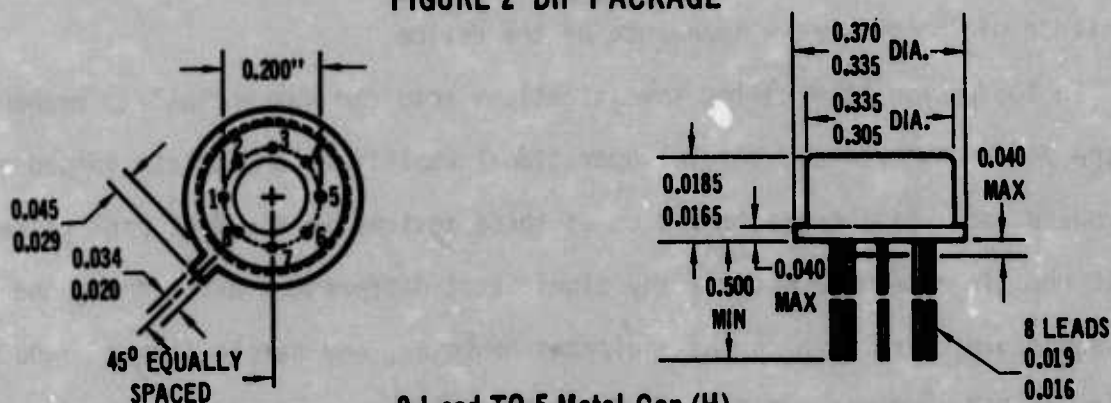


FIGURE 3 TO-5 METAL CAN

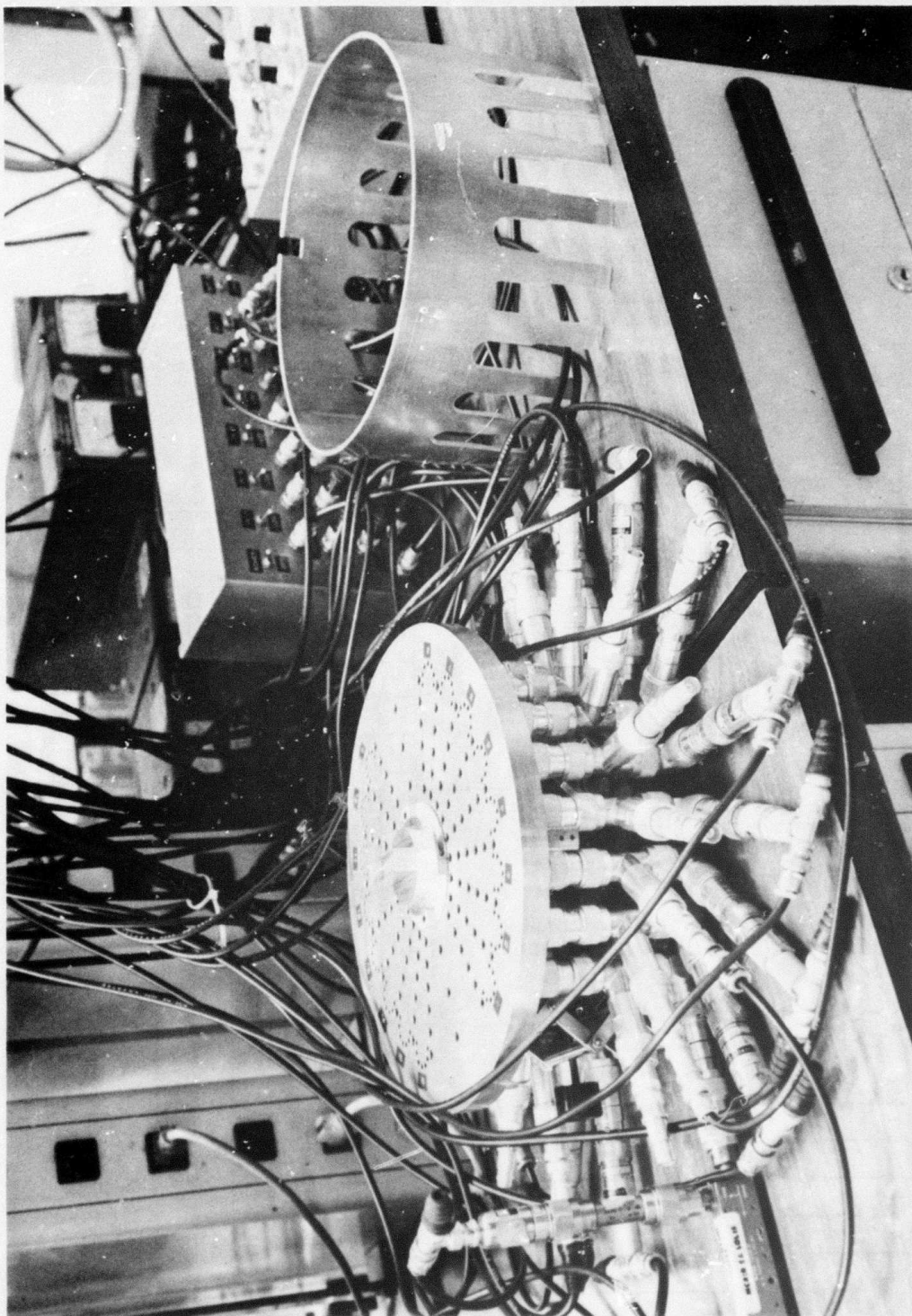


FIGURE 4 TEST FIXTURE FOR MEASURING SUSCEPTIBILITY OF
INTEGRATED CIRCUITS TO RF SIGNALS

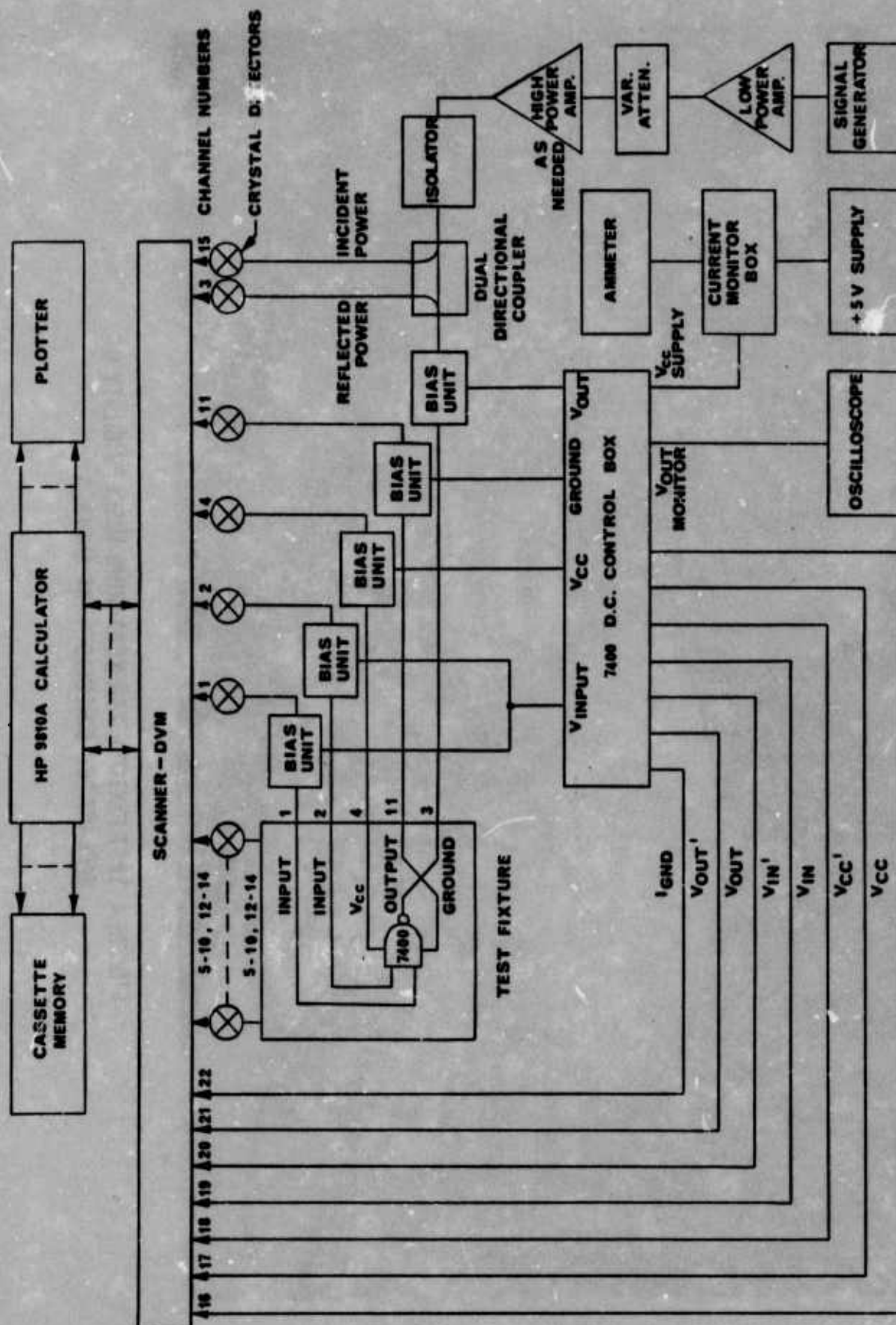


FIGURE 5 AUTOMATED SUSCEPTIBILITY MEASUREMENT SYSTEM SHOWN CONFIGURED FOR 7400 NAND GATE MEASUREMENTS

TABLE 1 Typical Data From Measurement System

PARAMETER	0 RF LEVEL	1 RF LEVEL	2 RF LEVEL	3 RF LEVEL
S.N.	13.0220	13.0220	13.0220	13.0220
P DIS.	-0.0013	863.1875	12.7159	18.4516
C.F. (dB)	0.0000	2.1699	3.4832	3.6465
P 1	0.0000	246.5121	0.7313	1.1574
P 2	0.0013	152.0992	10.3078	15.2551
P 3	0.0000	32.3522	1.2513	2.1445
P 4	0.0000	4.3214	0.2360	0.4114
P 5	0.0000	3.5414	0.1833	0.3166
P 6	0.0000	16.7085	0.2912	0.4683
P 7	0.0000	7.1118	0.3816	0.6309
P 8	0.0000	0.0921	0.0106	0.0158
P 9	0.0000	0.0825	0.0112	0.0173
P 10	0.0000	16.4508	0.3253	0.5276
P 11	0.0000	2.7134	0.1952	0.3479
P 12	0.0000	2.9763	0.1973	0.3581
P 13	0.0000	20.8999	0.3235	0.5437
P 14	0.0000	2.9928	0.1677	0.3033
P 15	0.0000	4.4622	0.2496	0.4463
P 16	0.0000	46.1397	0.7790	1.3291
P INC.	0.0000	1422.6436	28.3579	42.7249
V OUT	3.4560	0.1765	3.5700	3.6110
I OUT	0.3800	0.0170	0.4000	0.3900
V IN	0.2109	2.1430	0.8072	1.0140
I IN	0.9980	10.6300	3.9820	5.0030
V CC	4.9310	4.9230	4.9310	4.9310
I CC	-12.0000	-19.0000	-11.0000	-11.0000
I GND	11.3500	18.2600	11.4600	11.5200

purchased and subjected to the same type tests as had been previously run on the flat pack samples. Appendix A contains the pertinent data from these measurements (along with the previously taken data on the flat packs).

The parameter of interest here is the calibration factor. Figure 6 shows the 7400 calibration factor plotted as a function of absorbed power for the frequencies tested and permits a direct comparison for the 7400 in the flat pack and DIP packages. In general, it can be seen that the absorbed power is usually within a few decibels of the incident power, and it is not possible to state unequivocally that the random tuning expected in typical system wiring will not cause more power to be coupled into the device.

Figure 7 shows the measured calibration factors for the 741 operational amplifier in the T0-5 and the flat pack packages. Again it can be seen that the ratio of the incident power to the absorbed power is not great so that the worst case assumption does not appear to be overly conservative. The differences between the two curves in each case is probably not significant compared to the range of random tuning to be expected.

3.2 Absorptive Loss Measurements - Even though the absorbed power in the device is not too far down from the incident power, it is not clear what ratio of the absorbed power is dissipated in the chip compared to the package. To separate these two factors, a set of measurements were taken on shorted DIP and T0-5 packages.

The basic principle used for the package loss measurement is conservation of energy. A known amount of energy is injected into the test fixture containing the shorted package, and the energy which comes back out (due to transmission through the package and reflection at the input), is carefully measured. The amount of power absorbed will have two components; a fixture component and the desired package component.

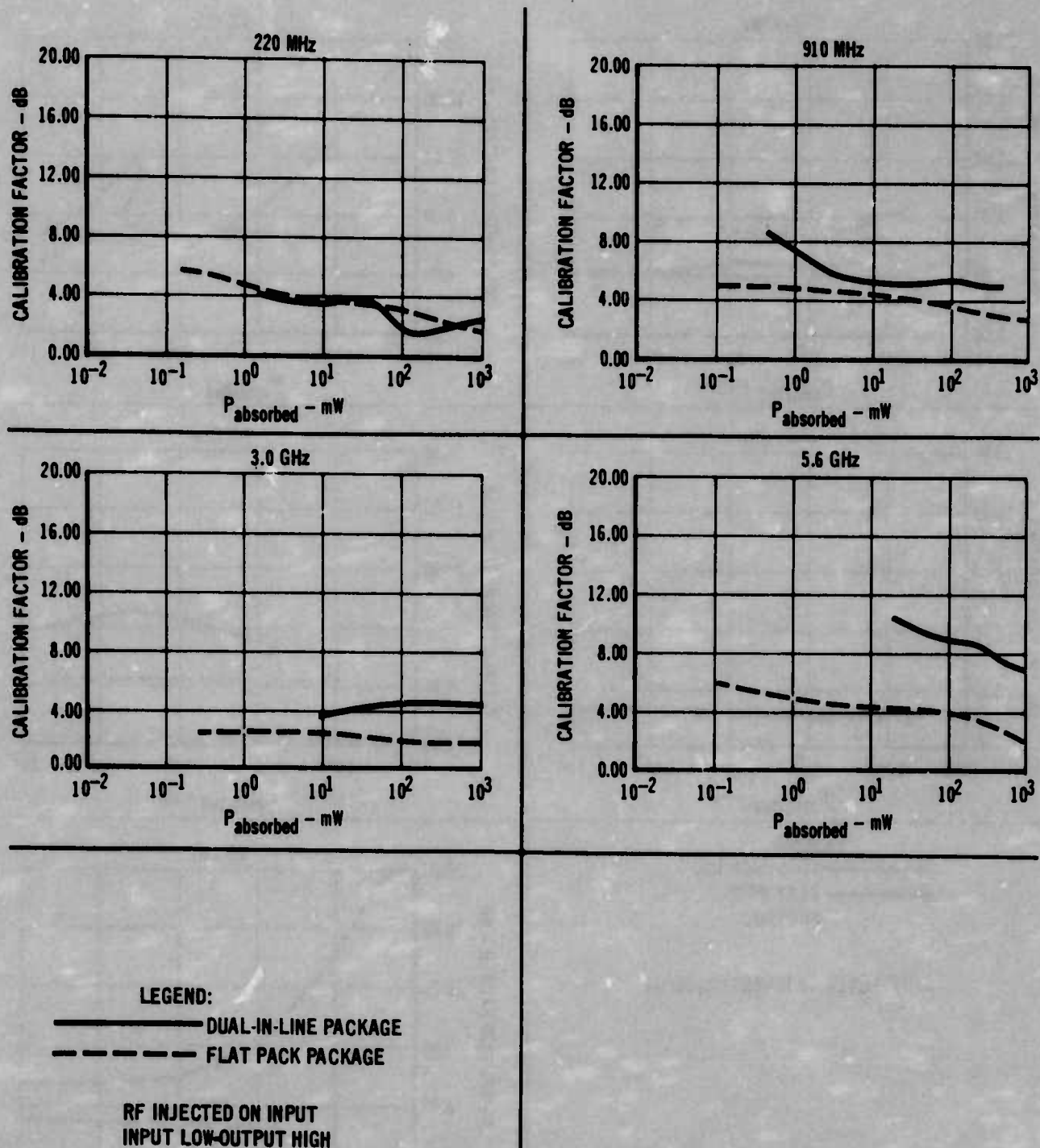


FIGURE 6 MEASURED CALIBRATION FACTORS FOR 7400 NAND GATE
IN FLAT PACK AND DUAL-IN-LINE PACKAGES

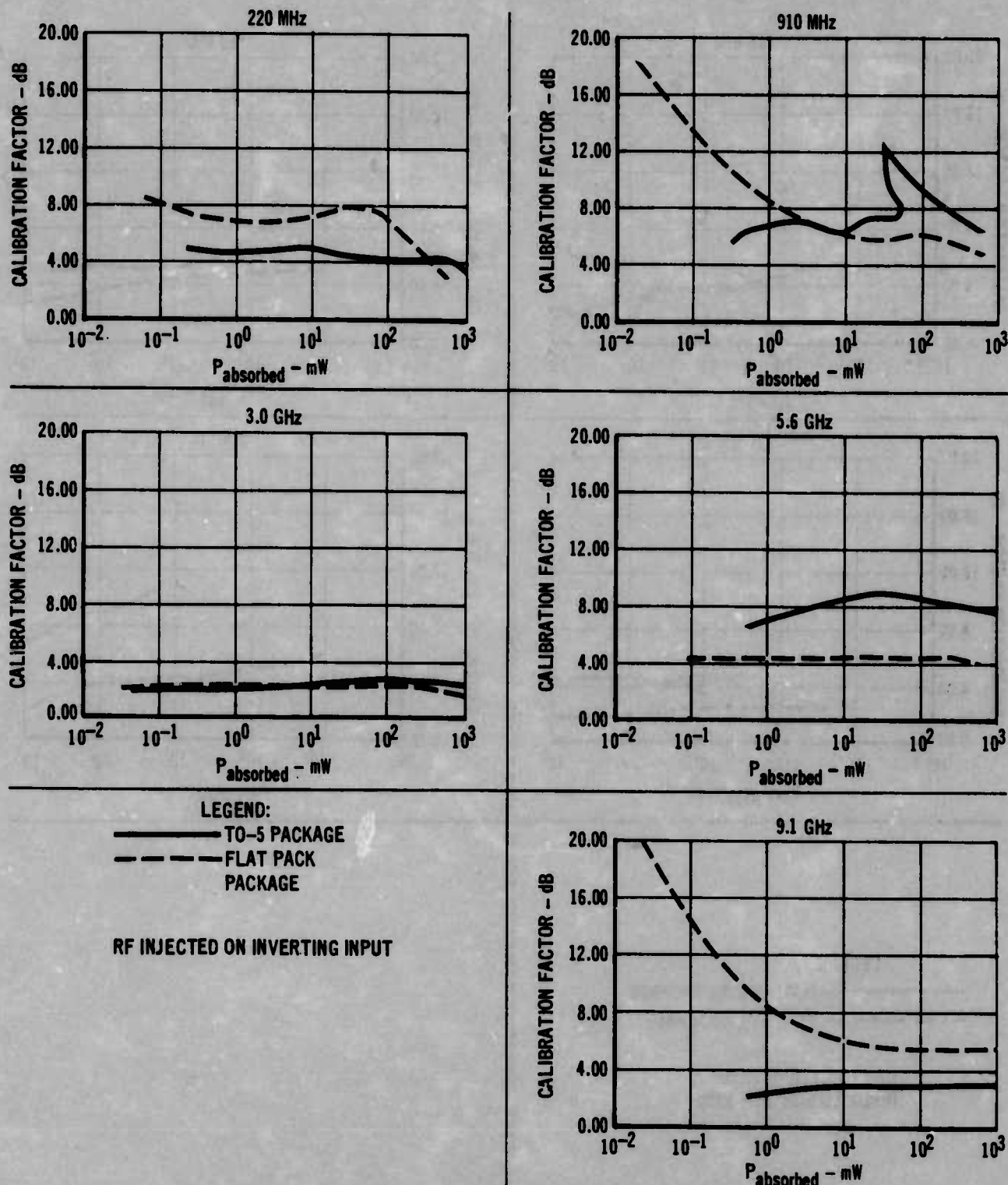


FIGURE 7 MEASURED CALIBRATION FACTORS FOR 741 OPERATIONAL AMPLIFIER IN FLAT PACK AND TO-5 PACKAGES

The fixture component is due to the losses in the transmission lines leading up to the package. These losses had been previously determined [4] by a loss measurement before the IC sockets were installed, and the loss factors are used in every measurement with the IC system as correction factors. The fixture loss is given by

$$L_F = \frac{P_{in}}{P_{out}} \geq 1 \quad (1)$$

where P_{in} is the total input power

and P_{out} is the total measured output power.

Table 2 lists the measured fixture loss values at the five frequencies used throughout this investigation.

The package loss factor can be found from

$$L_P L_F = \frac{P_{in}}{P_{out}} \geq 1 \quad (2)$$

where P_{in} and P_{out} are measured values using the package of interest. The experimental procedure is then to inject a known amount of power into the fixture containing the package, measure and sum the power coming from each port (including the reflected power), use the known values of L_F from Table 2, and calculate L_P . The measured loss factors ($L_P L_F$) and the calculated package factors are given in Tables 3 and 4 for the shorted DIP and TO-5 metal packages respectively. Compared to the measurement uncertainty of ± 0.5 dB, the package loss factors are not significant.

TABLE 2
FIXTURE ABSORPTION LOSS FACTORS

$$(L_F = P_{in}/P_{out})$$

FREQUENCY	10 LOG L_F
.22 GHz	.11 dB
.91	.07
3.0	.15
5.6	.55
9.1	.78

TABLE 3
MEASURED DIP PACKAGE ABSORPTION LOSS

$$(L_p L_F = P_{in}/P_{out})$$

FREQUENCY	10 LOG $L_p L_F$	10 LOG L_p
.22 GHz	.14 dB	.03 dB
.91	.43	.36
3.0	.19	.04
5.6	.74	.19
9.1	.61	-.17

TABLE 4
MEASURED TO-5 PACKAGE ABSORPTION LOSS

FREQUENCY	$(L_p L_F = P_{in}/P_{out})$	
	10 LOG $L_p L_F$	10 LOG L_p
.22 GHz	.28 dB	.17 dB
.91	.45	.38
3.0	.35	.20
5.6	.76	.21
9.1	1.45	.67

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4. CONCLUSIONS

Even though integrated circuit packages are not designed for good microwave transmission properties, it happens that the samples tested in this effort have absorptive loss properties which are essentially zero. Reflection properties observed are larger but this effect is as much a function of the transmission line leading up to the devices as it is of the package. The size of the reflections observed are easily tuned in the laboratory, leading one to expect highly probable instances of good matching in the random tuning environment to be found in aerospace applications of integrated circuits.

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5. REFERENCES

- [1] "Integrated Circuit Electromagnetic Susceptibility Investigation - Interim Report No. 2", MDC Report E0981 dated 28 December 1973. Prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory by McDonnell Douglas Astronautics Co. - East, St. Louis, Missouri 63166.
- [2] "Integrated Circuit Electromagnetic Susceptibility Investigation - Interim Report No. 1", MDC Report E0883 dated 24 August 1973. Prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory by McDonnell Douglas Astronautics Co. - East, St. Louis, Missouri 63166.
- [3] "Integrated Circuit Electromagnetic Susceptibility Investigation - Bipolar NAND Gate Studies" MDC Report E01123 dated 24 July 1974. Prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory by McDonnell Douglas Astronautics Co. - East, St. Louis, Missouri 63166.
- [4] "Integrated Circuit Electromagnetic Susceptibility Investigation - Test and Measurement Systems", MDC Report E1099 dated 12 July 1974. Prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory by McDonnell Douglas Astronautics Co. - East, St. Louis, Missouri 63166.
- [5] "Integrated Circuit Electromagnetic Susceptibility Investigation - Cable Coupling Study" MDC Report E0921 dated 8 October 1973. Prepared under Contract No. N00178-73-C-0362 for the U. S. Naval Weapons Laboratory by McDonnell Douglas Astronautics Co. - East, St. Louis, Missouri 63166.

APPENDIX A

DATA

Nomenclature:

P INC - Incident power measured in milliwatts

P ABS - Absorbed power measured in milliwatts

C. F. - Calibration factor, ratio of P INC/P ABS
expressed in decibels

V OUT - Output voltage of device measured in volts

CHIP #1 - 7400 Chip in Flat Pack Package

CHIP #2 - 7400 Chip in DIP Package

CHIP #3 - 741 Chip in Flat Pack Package

CHIP #4 - 741 Chip in TO-5 Package

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TABLE A-1: 7400 DIP DATA FOR 220 MHz

S.N. 11.022				S.N. 14.022			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	3.44	0.00	-0.00	0.00	3.47
8.83	3.95	3.50	3.46	16.14	7.32	3.43	3.55
22.61	10.30	3.42	3.51	30.59	13.40	3.59	3.58
66.98	29.38	3.58	3.71	68.58	30.14	3.57	3.67
106.19	59.74	2.50	3.22	97.63	53.27	2.63	3.37
114.30	66.20	2.37	2.51	109.39	62.34	2.44	2.14
117.93	69.83	2.28	1.65	111.04	64.48	2.36	1.55
120.51	73.96	2.12	1.00	117.05	71.30	2.15	0.94
154.25	107.95	1.55	0.46	306.50	222.20	1.40	0.44
330.63	237.41	1.44	0.41	470.37	319.39	1.68	0.36
710.93	458.22	1.91	0.19	1025.74	627.00	2.14	0.14
1464.97	866.59	2.28	0.12	1395.06	816.23	2.33	0.15

S.N. 12.022				S.N. 15.022			
0.00	0.00	0.00	3.46	0.00	-0.00	0.00	3.45
3.85	1.52	4.04	3.46	12.27	5.44	3.53	3.49
15.41	6.96	3.45	3.49	23.93	10.36	3.64	3.53
65.46	28.50	3.61	3.72	55.85	22.52	3.94	3.69
94.58	51.04	2.68	3.28	96.42	51.64	2.71	3.49
102.61	57.35	2.53	2.60	110.18	62.42	2.47	2.74
106.31	61.58	2.37	1.74	112.76	64.89	2.40	2.32
109.27	65.41	2.23	1.01	115.17	68.09	2.28	1.48
115.86	71.37	2.10	0.72	119.75	73.15	2.14	0.91
237.13	174.33	1.34	0.37	127.77	82.69	1.89	0.48
857.01	540.27	2.00	0.16	274.26	200.81	1.35	0.41
1578.75	926.92	2.31	0.14	1377.29	813.72	2.29	0.13

S.N. 13.022			
0.00	-0.00	0.00	3.46
28.36	12.72	3.48	3.57
42.72	18.45	3.65	3.61
65.90	27.93	3.73	3.67
106.61	59.28	2.55	3.33
117.67	67.55	2.41	2.66
123.06	72.47	2.30	1.84
126.22	76.62	2.17	1.21
135.02	85.26	2.00	0.76
249.03	181.67	1.37	0.55
998.82	634.19	1.97	0.23
1422.64	863.19	2.17	0.18

TABLE A-2: 7400 DIP DATA FOR 910 MHz

S.N. 11.091				S.N. 14.091			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	3.44	0.00	-0.00	0.00	3.48
3.25	0.45	8.63	3.47	19.48	5.34	5.62	3.50
7.10	1.41	7.03	3.45	74.81	20.80	5.56	3.50
13.98	3.57	5.93	3.45	243.86	64.59	5.77	3.45
86.43	24.67	5.45	3.47	345.85	93.44	5.68	3.34
301.46	84.07	5.55	3.43	429.41	121.66	5.48	2.71
501.86	154.67	5.11	1.80	472.56	138.21	5.34	2.13
609.73	193.06	4.99	0.44	508.19	150.05	5.30	1.57
920.82	290.75	5.01	0.12	536.78	159.60	5.27	1.10
1196.18	368.42	5.11	0.09	559.16	167.79	5.23	0.74
1365.33	415.47	5.17	0.08	708.64	218.48	5.11	0.36
1459.76	431.87	5.29	0.07	1493.50	414.91	5.56	0.08

S.N. 12.091				S.N. 15.091			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	3.46	0.00	-0.00	0.00	3.45
6.85	1.31	7.17	3.47	14.06	3.75	5.75	3.48
60.44	15.48	5.92	3.48	39.65	11.21	5.49	3.48
127.57	31.64	6.06	3.50	206.47	55.11	5.74	3.51
334.89	82.00	6.11	3.44	353.77	96.22	5.65	3.40
445.82	117.96	5.77	2.89	412.66	116.37	5.50	3.13
514.13	141.15	5.61	2.07	459.84	133.24	5.38	2.65
556.36	154.40	5.57	1.45	498.92	148.53	5.26	2.11
630.08	177.75	5.50	0.53	546.53	163.99	5.23	1.39
934.87	261.46	5.53	0.15	594.56	180.62	5.17	0.67
1357.94	360.89	5.76	0.11	753.30	228.95	5.17	0.30
1491.08	384.42	5.89	0.11	1497.14	418.04	5.54	0.09

S.N. 13.091			
P INC	P ABS	C.F.	V OUT
0.00	-0.00	0.00	3.46
10.30	2.57	6.03	3.49
140.63	39.49	5.52	3.46
306.77	84.66	5.59	3.42
341.87	95.50	5.54	3.39
417.65	120.42	5.40	3.19
486.41	145.84	5.23	2.69
543.75	166.81	5.13	2.07
601.89	187.20	5.07	1.34
627.42	197.13	5.03	1.02
939.45	298.11	4.99	0.20
1548.81	475.17	5.13	0.11

TABLE A-3: 7400 DIP DATA FOR 3.0 GHz

S.N. 11.300				S.N. 14.300			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	3.50	0.00	-0.00	0.00	3.54
20.90	8.98	3.67	3.50	19.98	8.49	3.72	3.54
99.78	39.87	3.98	3.34	69.45	27.41	4.04	3.43
238.07	92.64	4.10	3.05	140.61	53.34	4.21	3.27
489.61	189.31	4.13	2.62	289.22	106.74	4.33	3.04
674.33	262.47	4.10	2.10	562.77	206.06	4.36	2.52
842.60	331.51	4.05	1.72	748.29	275.46	4.34	2.05
1566.31	619.79	4.03	1.11	1062.89	395.13	4.30	1.55
2008.27	796.76	4.01	0.70	1573.31	585.06	4.30	1.02
3279.04	1335.61	3.90	0.28	2594.37	974.01	4.25	0.49
4235.69	1760.58	3.81	0.15	4436.89	1711.39	4.14	0.18
5305.17	2209.70	3.80	0.09	5916.54	2306.79	4.09	0.13

S.N. 12.300				S.N. 15.300			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	3.52	0.00	-0.00	0.00	3.51
20.10	8.29	3.85	3.55	20.31	8.65	3.71	3.51
44.11	17.30	4.06	3.48	46.72	18.92	3.93	3.46
88.88	33.40	4.25	3.38	100.66	38.90	4.13	3.35
120.22	44.41	4.33	3.30	189.52	71.05	4.26	3.17
280.21	100.31	4.46	3.02	350.99	129.25	4.34	2.95
633.62	226.33	4.47	2.43	570.46	209.28	4.35	2.50
975.05	355.21	4.39	1.82	838.71	311.14	4.31	1.91
1995.10	730.41	4.36	1.06	1802.63	674.80	4.27	1.17
3082.16	1150.14	4.28	0.42	2792.03	1055.58	4.22	0.50
4121.12	1570.92	4.19	0.20	4203.44	1620.74	4.14	0.20
5363.03	2070.26	4.13	0.11	5972.48	2306.61	4.13	0.11

S.N. 13.300			
P INC	P ABS	C.F.	V OUT
0.00	-0.00	0.00	3.49
21.26	10.29	3.15	3.50
54.04	25.19	3.31	3.43
166.68	74.18	3.52	3.20
414.18	180.52	3.61	2.87
775.92	339.08	3.60	2.05
1240.52	547.18	3.55	1.56
1796.56	792.27	3.56	1.09
2147.22	948.89	3.55	0.74
2817.76	1259.61	3.50	0.49
4102.96	1899.29	3.35	0.22
5511.90	2536.15	3.37	0.17

TABLE A-4: 7400 DIP DATA FOR 5.6 GHz

S.N. 11.560				S.N. 14.560			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	-0.02	0.00	3.50	0.00	-0.01	0.00	3.52
186.66	18.32	10.08	3.49	189.09	19.10	9.96	3.51
398.78	42.49	9.72	3.47	405.73	47.17	9.35	3.48
789.31	96.60	9.12	3.39	1180.04	166.26	8.51	3.33
1524.68	206.80	8.68	3.24	2208.67	343.31	8.08	3.18
2257.82	326.03	8.40	3.12	4801.46	837.45	7.58	3.08
3746.33	594.03	8.00	2.98	6478.71	1312.89	6.93	2.96
4972.08	830.20	7.77	2.98	7105.21	1532.35	6.66	2.67
6816.78	1234.11	7.42	2.88	7844.90	1687.22	6.67	2.26
8090.72	1568.55	7.12	2.46	8403.91	1857.07	6.56	1.77
9387.10	1920.86	6.89	1.47	8734.32	1937.02	6.54	0.98
10257.85	2254.35	6.58	0.40	9090.72	1976.10	6.63	0.78

S.N. 12.560				S.N. 15.560			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	-0.02	0.00	3.52	0.00	0.00	0.00	3.49
181.37	19.93	9.59	3.51	189.59	19.09	9.97	3.49
416.24	51.98	9.04	3.48	655.09	83.82	8.93	3.43
664.97	91.01	8.64	3.44	1744.31	260.09	8.26	3.25
1156.03	174.26	8.22	3.35	2934.66	483.11	7.84	3.14
1889.24	307.80	7.88	3.25	5361.64	991.78	7.33	3.20
2589.19	440.02	7.70	3.21	7189.36	1462.50	6.92	2.90
3318.29	602.91	7.41	3.26	7913.88	1707.69	6.66	2.55
4261.06	845.70	7.02	3.38	8570.64	1907.27	6.53	1.88
5202.60	1077.57	6.84	3.32	9006.95	2036.18	6.46	1.28
7566.22	1662.73	6.58	2.62	9144.09	2135.65	6.32	0.74
10023.62	2402.45	6.20	0.27	10015.12	2325.39	6.34	0.23

S.N. 13.560			
P INC	P ABS	C.F.	V OUT
0.00	-0.02	0.00	3.53
179.55	16.22	10.44	3.52
672.54	73.41	9.62	3.46
1387.67	167.72	9.18	3.35
2793.28	375.54	8.71	3.20
5337.02	808.60	8.20	3.24
8295.75	1361.19	7.85	3.08
9155.43	1572.13	7.65	2.89
9535.49	1597.18	7.76	2.75
10404.60	1723.87	7.81	2.37
11124.27	1889.97	7.70	1.40
11785.92	2019.55	7.66	0.66

TABLE A-5: 7400 FLAT PACK DATA AT 220 MHZ

S.N. 1211				S.N. 1213			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.50	0.16	4.91	3.53	0.44	0.16	4.42	3.55
1.18	0.36	5.17	3.53	1.26	0.37	5.30	3.55
2.73	0.91	4.80	3.53	2.45	0.79	4.92	3.55
6.67	2.59	4.11	3.54	3.15	1.07	4.70	3.55
10.51	4.17	4.01	3.54	5.66	2.12	4.26	3.55
17.01	6.50	4.18	3.56	10.50	4.25	3.93	3.56
26.63	10.76	3.94	3.58	17.55	7.41	3.74	3.58
37.32	15.13	3.92	3.60	26.68	11.41	3.69	3.60
51.18	20.73	3.93	3.63	36.54	15.80	3.64	3.63
72.24	29.24	3.93	3.68	51.40	22.53	3.58	3.66
100.20	41.18	3.86	3.74	71.11	31.38	3.55	3.71
147.59	69.72	3.26	3.62	100.12	45.03	3.47	3.78
202.68	108.84	2.70	2.02	149.82	75.30	2.99	3.82
284.64	167.40	2.31	0.38	206.91	107.27	2.85	3.54
362.27	221.26	2.14	0.27	278.84	159.71	2.42	1.84
477.62	302.55	1.98	0.18	360.97	216.32	2.22	0.54
592.97	383.18	1.90	0.12	470.90	287.50	2.14	0.29
755.06	493.89	1.84	0.08	593.51	365.57	2.10	-0.04
868.22	569.92	1.83	0.06	732.95	451.50	2.10	-0.12
1041.18	682.67	1.83	0.06	825.02	561.58	1.67	-0.13

S.N. 1212				S.N. 1214			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.46	0.18	4.14	3.58	0.44	0.16	4.23	3.51
1.34	0.61	3.41	3.58	1.16	0.35	5.13	3.50
2.96	0.70	6.24	3.58	2.37	0.77	4.39	3.51
6.08	2.37	4.09	3.58	3.61	1.29	4.48	3.51
10.61	4.40	3.82	3.59	5.67	2.17	4.17	3.51
17.65	7.60	3.66	3.61	9.99	4.04	3.93	3.52
26.80	11.75	3.58	3.64	17.39	7.29	3.77	3.54
36.68	16.11	3.57	3.66	26.57	11.34	3.70	3.56
50.82	22.46	3.55	3.70	37.00	15.81	3.69	3.59
70.68	31.55	3.50	3.75	51.38	21.99	3.69	3.62
100.28	46.43	3.34	3.83	71.18	30.42	3.69	3.68
148.75	75.05	2.97	3.81	100.61	44.63	3.53	3.75
208.37	112.26	2.69	3.41	147.59	72.88	3.06	3.71
288.40	172.46	2.23	1.33	206.69	107.77	2.83	3.23
369.23	229.05	2.07	0.35	280.38	161.73	2.39	1.18
470.41	296.53	2.00	0.20	362.70	217.45	2.22	0.38
594.06	377.26	1.97	0.04	467.64	286.02	2.14	0.12
745.08	472.83	1.98	-0.07	594.24	367.33	2.09	-0.05
810.16	513.69	1.98	-0.09	744.88	460.36	2.09	-0.10
877.21	553.97	2.00	-0.10	873.92	537.33	2.11	-0.12

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TABLE A-5 (CONT'D)

S.N. 1215				S.N. 1217			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.46	0.19	3.81	3.56	0.69	0.23	4.75	3.34
1.19	0.51	3.65	3.56	1.33	0.26	7.15	3.34
2.40	0.81	4.74	3.56	2.51	0.66	5.80	3.34
3.75	1.37	4.38	3.56	3.68	0.87	6.25	3.34
5.91	2.30	4.10	3.56	5.59	1.11	7.00	3.34
10.34	4.22	3.89	3.58	10.30	1.60	8.07	3.35
17.54	7.38	3.76	3.59	17.87	2.19	9.12	3.35
26.31	11.23	3.70	3.62	26.33	2.67	9.93	3.36
36.74	15.68	3.70	3.65	36.97	3.13	10.73	3.38
50.85	21.81	3.68	3.68	50.71	3.76	11.30	3.38
69.49	30.02	3.65	3.73	71.25	5.26	11.32	3.40
102.83	46.30	3.47	3.82	103.82	8.23	11.01	3.44
145.67	70.72	3.14	3.82	144.42	16.56	9.41	3.50
207.36	106.62	2.89	3.34	210.74	57.28	5.66	3.09
280.25	160.02	2.43	1.47	284.63	113.46	3.99	0.66
363.71	216.27	2.26	0.34	360.97	169.63	3.28	0.38
477.78	289.52	2.18	0.15	411.09	206.76	2.98	0.30
595.52	364.43	2.13	0.01	451.50	235.49	2.83	0.27
745.69	457.32	2.12	-0.08	525.54	288.49	2.60	0.25
873.91	532.93	2.15	-0.11	592.42	334.82	2.48	0.24

S.N. 1216				S.N. 1218			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.47	0.17	4.38	3.52	11.05	0.21	17.31	3.29
1.19	0.50	3.80	3.52	11.82	0.40	14.72	3.27
2.39	1.05	3.60	3.52	13.94	1.05	11.24	3.22
4.16	1.61	4.12	3.52	15.91	1.59	10.00	3.17
5.91	2.36	3.99	3.53	19.07	2.48	8.86	3.10
10.32	4.25	3.85	3.53	23.12	3.77	7.88	3.01
17.66	7.56	3.68	3.55	28.54	5.46	7.18	2.89
26.28	11.37	3.64	3.57	39.97	9.28	6.34	1.98
36.17	15.69	3.63	3.60	50.47	13.74	5.65	0.54
50.73	21.99	3.63	3.63	62.84	18.39	5.34	0.22
71.46	31.33	3.58	3.69	81.36	25.73	5.00	0.18
101.84	46.48	3.41	3.77	97.04	31.67	4.86	0.17
145.00	72.12	3.03	3.82	111.73	36.93	4.81	0.17
210.74	108.44	2.89	3.59	128.76	43.40	4.72	0.16
278.20	155.81	2.52	2.20	148.85	50.59	4.69	0.16
362.27	214.18	2.28	0.77	171.33	58.69	4.65	0.16
466.99	307.64	1.81	0.38	192.58	66.34	4.63	0.16
590.60	358.75	2.17	0.10	212.21	73.28	4.62	0.15
746.91	453.70	2.17	-0.08	233.27	80.44	4.62	0.15
885.80	532.94	2.21	-0.10	260.42	89.94	4.62	0.15

INTEGRATED CIRCUIT SUSCEPTIBILITY
TABLE A-5 (CONT'D)

S.N. 1219				S.N. 1210			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.44	0.16	4.37	3.48	0.42	0.16	4.25	3.52
1.19	0.34	5.48	3.48	1.09	0.34	5.02	3.52
2.31	0.74	4.93	3.48	2.20	0.72	4.83	3.52
4.15	1.48	4.47	3.48	3.64	1.34	4.36	3.53
5.58	2.08	4.29	3.49	5.54	2.20	4.01	3.53
9.72	3.83	4.05	3.49	9.43	4.01	3.71	3.54
17.02	6.92	3.91	3.50	16.63	7.44	3.49	3.55
25.97	10.72	3.84	3.52	25.96	11.91	3.38	3.57
37.17	15.44	3.82	3.54	37.39	17.48	3.30	3.60
51.31	21.46	3.79	3.57	52.02	24.73	3.23	3.63
71.53	30.15	3.75	3.60	70.54	34.14	3.15	3.67
101.43	43.94	3.63	3.66	100.28	51.06	2.93	3.74
145.57	71.12	3.11	3.59	144.04	80.14	2.55	3.74
207.92	113.89	2.61	2.94	210.29	123.03	2.33	3.29
283.99	173.96	2.13	0.57	282.70	179.77	1.97	1.35
364.58	231.00	1.98	0.51	362.70	237.30	1.84	0.37
480.25	312.31	1.87	0.46	475.32	315.13	1.78	0.15
595.88	393.17	1.81	0.42	596.61	396.76	1.77	-0.00
747.72	498.96	1.76	0.39	753.23	497.96	1.80	-0.09
886.46	594.73	1.73	0.37	877.21	575.44	1.83	-0.11

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TABLE A-6: 7400 FLAT PACK DATA FOR 910 MHz

S.N. 2211				S.N. 2213			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.38	0.10	5.57	3.54	0.40	0.11	5.39	3.51
0.84	0.25	5.30	3.54	0.87	0.26	5.13	3.51
1.54	0.46	5.25	3.54	1.55	0.47	5.14	3.50
2.43	0.73	5.23	3.54	2.38	0.73	5.12	3.50
3.36	1.02	5.19	3.54	4.52	1.43	5.00	3.50
4.47	1.37	5.14	3.54	6.84	2.19	4.94	3.51
6.99	2.20	5.03	3.54	11.11	3.63	4.85	3.51
11.14	3.62	4.88	3.54	16.30	5.45	4.76	3.51
16.21	5.40	4.78	3.54	22.14	7.53	4.68	3.51
21.93	7.47	4.68	3.54	28.98	10.02	4.61	3.51
28.09	9.82	4.56	3.54	82.34	31.03	4.24	3.52
84.18	33.15	4.05	3.56	164.01	68.14	3.81	3.54
168.05	70.95	3.74	3.58	265.18	117.20	3.55	3.58
270.30	120.31	3.52	3.60	396.86	182.40	3.38	3.61
403.16	187.79	3.32	3.64	532.78	252.28	3.25	3.66
540.95	258.13	3.21	3.69	712.79	346.62	3.13	3.63
725.62	349.54	3.17	3.76	913.33	451.40	3.06	3.58
1017.50	485.10	3.22	3.79	1128.07	559.00	3.05	3.55
1363.83	633.45	3.33	3.82	1459.08	716.79	3.09	3.36
1895.46	848.20	3.49	3.79	1888.47	914.23	3.15	2.69

S.N. 2212				S.N. 2214			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.41	0.12	5.31	3.50	0.39	0.11	5.34	3.51
0.90	0.28	5.12	3.50	0.87	0.29	4.72	3.50
1.61	0.50	5.10	3.50	1.63	0.56	4.67	3.50
2.26	0.70	5.07	3.50	2.45	0.85	4.60	3.50
4.63	1.48	4.95	3.50	4.41	1.57	4.48	3.50
6.82	2.22	4.87	3.50	6.68	2.42	4.40	3.50
11.00	3.67	4.77	3.50	11.23	4.16	4.31	3.50
16.26	5.54	4.68	3.50	16.90	6.40	4.22	3.51
21.76	7.50	4.63	3.50	21.08	8.08	4.16	3.51
27.47	9.65	4.54	3.50	29.36	11.49	4.07	3.51
82.55	32.19	4.09	3.51	82.07	34.92	3.71	3.53
165.29	69.72	3.75	3.54	158.03	71.20	3.46	3.55
269.62	120.67	3.49	3.56	261.23	123.80	3.24	3.58
403.70	188.42	3.31	3.60	385.75	191.26	3.05	3.62
541.42	260.78	3.17	3.63	539.37	279.36	2.86	3.67
704.89	347.85	3.07	3.57	722.71	385.88	2.73	3.67
919.02	462.13	2.99	3.48	895.17	486.91	2.64	3.64
1107.46	559.66	2.96	3.41	1112.37	612.20	2.59	3.55
1461.89	733.64	2.99	3.02	1469.83	814.52	2.56	2.33
1901.88	942.34	3.05	2.17	1890.51	1057.50	2.52	0.59

INTEGRATED CIRCUIT SUSCEPTIBILITY

TABLE A-6 (CONT'D)

S.N. 2215				S.N. 2217			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.39	0.12	5.08	3.51	0.41	0.15	4.36	3.51
0.94	0.31	4.82	3.51	0.82	0.31	4.16	3.50
1.70	0.57	4.75	3.51	1.71	0.66	4.12	3.50
2.45	0.82	4.76	3.51	2.41	0.92	4.18	3.50
4.25	1.43	4.75	3.51	4.52	1.73	4.18	3.50
7.00	2.39	4.67	3.51	7.30	2.82	4.13	3.50
11.16	3.87	4.60	3.51	11.00	4.24	4.14	3.50
16.90	5.97	4.52	3.51	16.87	6.59	4.09	3.50
21.57	7.74	4.45	3.51	21.28	8.41	4.03	3.50
29.11	10.68	4.35	3.51	28.67	11.60	3.95	3.51
83.02	33.52	3.94	3.53	65.54	19.75	5.21	3.52
163.46	70.70	3.64	3.54	166.76	73.47	3.56	3.54
261.01	118.63	3.42	3.57	261.57	120.39	3.37	3.57
405.63	194.41	3.19	3.61	409.64	196.67	3.19	3.61
529.49	260.95	3.07	3.65	526.69	263.16	3.01	3.65
720.00	362.14	2.98	3.70	740.20	375.63	2.95	3.67
926.97	466.92	2.98	3.70	910.09	486.91	2.72	3.68
1107.91	553.69	3.01	3.71	1152.26	586.48	2.93	3.70
1482.42	725.10	3.11	3.72	1473.93	714.54	3.14	3.74
1905.67	919.79	3.16	3.47	1938.24	935.21	3.17	3.64

S.N. 2216				S.N. 2218			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.40	0.13	4.88	3.54	0.40	0.17	3.84	3.49
0.96	0.32	4.75	3.54	1.04	0.44	3.70	3.48
1.68	0.57	4.67	3.54	1.66	0.71	3.69	3.47
2.42	0.82	4.71	3.54	2.44	1.04	3.73	3.47
4.44	1.51	4.68	3.54	4.43	1.89	3.70	3.46
6.78	2.34	4.63	3.54	6.84	2.94	3.66	3.46
11.38	3.99	4.55	3.54	11.51	5.03	3.60	3.46
16.20	5.78	4.48	3.54	15.76	6.95	3.56	3.46
22.01	8.01	4.39	3.54	22.66	10.16	3.48	3.46
27.91	10.38	4.30	3.54	29.48	13.45	3.41	3.46
80.66	33.24	3.85	3.56	84.38	40.10	3.23	3.48
163.28	72.02	3.55	3.58	170.27	86.18	2.96	3.50
262.81	121.86	3.34	3.61	267.68	135.27	2.96	3.52
394.14	191.72	3.13	3.65	393.73	205.51	2.82	3.56
539.37	269.33	3.02	3.72	529.96	231.58	2.75	3.61
705.43	356.47	2.96	3.80	720.36	388.94	2.68	3.60
907.06	458.38	2.96	3.86	917.80	496.69	2.67	3.63
1126.94	564.67	3.00	3.87	1101.23	594.10	2.63	3.59
1460.86	728.16	3.02	3.84	1525.22	814.13	2.73	3.48
1903.30	943.55	3.06	3.12	1925.29	1009.92	2.80	2.20

TABLE A-6 (CONT'D)

S.N. 2219				S.N. 2210			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.42	0.14	4.83	3.51	0.38	0.12	5.16	3.57
0.96	0.33	4.61	3.50	0.83	0.26	4.97	3.56
1.58	0.55	4.55	3.50	1.75	0.57	4.90	3.56
2.34	0.83	4.50	3.50	2.35	0.76	4.90	3.56
4.19	1.51	4.43	3.50	4.64	1.56	4.74	3.56
6.90	2.53	4.35	3.50	6.78	2.40	4.51	3.56
10.93	4.07	4.29	3.50	11.37	4.33	4.20	3.56
15.87	5.97	4.25	3.50	16.25	6.38	4.06	3.56
21.29	8.12	4.19	3.50	21.22	8.06	4.21	3.57
28.28	10.94	4.12	3.51	28.24	10.99	4.10	3.57
82.82	34.92	3.75	3.52	83.43	34.96	3.78	3.58
161.01	72.11	3.49	3.54	167.03	74.69	3.50	3.60
261.68	122.88	3.28	3.56	273.51	129.04	3.26	3.63
385.89	187.98	3.12	3.59	391.83	191.16	3.12	3.66
538.43	272.01	2.97	3.63	529.18	262.94	3.04	3.71
723.98	371.51	2.90	3.64	727.07	369.77	2.94	3.79
910.09	472.85	2.84	3.61	912.12	454.04	3.03	3.86
1098.35	572.17	2.83	3.58	1125.82	567.42	2.98	3.92
1452.69	763.18	2.80	3.49	1453.71	710.13	3.11	3.94
1857.77	953.97	2.89	2.63	1924.42	931.29	3.15	3.80

TABLE A-7: 7400 FLAT PACK DATA FOR 3.0 GHz

S.N. 3211				S.N. 3213			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.43	0.24	2.57	3.51	0.43	0.24	2.51	3.46
1.12	0.62	2.58	3.51	1.12	0.63	2.47	3.46
2.47	1.36	2.58	3.51	2.34	1.33	2.46	3.46
4.42	2.43	2.61	3.51	4.49	2.55	2.46	3.46
6.01	3.29	2.63	3.51	6.04	3.41	2.48	3.46
9.94	5.36	2.68	3.52	10.09	5.63	2.53	3.46
14.70	7.86	2.72	3.52	14.50	8.07	2.54	3.46
22.33	11.90	2.73	3.52	22.25	12.42	2.53	3.46
37.61	20.15	2.71	3.52	37.45	21.08	2.50	3.47
67.82	37.00	2.63	3.53	67.48	38.89	2.39	3.48
85.10	47.00	2.58	3.54	85.62	49.88	2.35	3.48
114.12	63.86	2.52	3.55	114.87	68.34	2.26	3.49
146.08	82.78	2.47	3.56	145.62	88.04	2.19	3.50
185.31	106.22	2.42	3.57	185.73	114.25	2.11	3.51
290.32	170.61	2.31	3.61	290.58	183.29	2.00	3.55
426.51	251.64	2.29	3.64	426.51	272.41	1.95	3.59
623.25	366.37	2.31	3.70	623.62	392.70	2.01	3.65
821.68	480.61	2.33	3.77	821.47	504.35	2.12	3.72
1180.98	690.77	2.33	3.89	1177.91	700.32	2.26	3.83
1517.75	893.75	2.30	3.97	1518.62	901.72	2.26	3.92

S.N. 3212				S.N. 3214			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.40	0.23	2.51	3.52	0.43	0.27	2.02	3.46
1.12	0.63	2.51	3.52	1.12	0.71	2.00	3.46
2.52	1.41	2.51	3.52	2.30	1.46	1.98	3.46
4.49	2.50	2.54	3.52	4.70	2.98	1.98	3.46
5.59	2.93	2.81	3.52	5.99	3.79	1.99	3.46
9.65	4.98	2.87	3.52	10.10	6.37	2.00	3.46
14.01	7.17	2.91	3.52	14.37	9.09	1.99	3.47
21.65	11.07	2.91	3.53	22.30	14.24	1.95	3.47
37.14	19.12	2.88	3.53	37.61	24.40	1.88	3.47
66.42	34.94	2.79	3.54	67.28	44.79	1.77	3.48
85.54	48.14	2.50	3.54	86.06	58.02	1.71	3.49
115.55	66.19	2.42	3.55	114.37	78.16	1.65	3.50
146.18	80.39	2.60	3.57	145.52	100.22	1.62	3.51
185.73	103.84	2.53	3.58	187.62	130.16	1.59	3.53
290.84	166.37	2.43	3.61	291.22	201.84	1.59	3.56
423.73	246.17	2.36	3.66	420.64	286.73	1.66	3.61
623.43	378.78	2.16	3.73	621.76	415.87	1.75	3.68
827.24	501.36	2.17	3.81	821.68	541.30	1.81	3.73
1179.95	688.73	2.34	3.92	1177.14	766.16	1.87	3.76
1526.50	908.70	2.25	4.00	1517.75	996.44	1.83	3.74

TABLE A-7 (CONT'D)

S.N. 3215				S.N. 3217			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.43	0.26	2.18	3.53	0.43	0.27	2.07	3.47
1.13	0.68	2.17	3.53	1.13	0.71	2.02	3.47
2.07	1.24	2.20	3.53	2.34	1.47	2.00	3.47
4.23	2.55	2.19	3.53	4.49	2.84	2.00	3.47
5.71	3.44	2.21	3.53	6.02	3.79	2.01	3.47
9.83	5.85	2.26	3.53	9.85	6.15	2.04	3.47
14.03	8.27	2.30	3.53	13.67	8.50	2.06	3.47
22.04	12.91	2.32	3.53	21.92	13.62	2.07	3.48
36.93	21.63	2.32	3.54	37.40	23.33	2.05	3.48
66.81	39.58	2.27	3.55	67.01	42.45	1.98	3.49
84.88	50.65	2.24	3.56	85.17	54.50	1.94	3.50
114.87	69.33	2.19	3.57	114.62	74.31	1.88	3.51
145.15	88.55	2.15	3.58	146.18	96.23	1.82	3.52
184.58	113.58	2.11	3.59	185.94	123.94	1.76	3.53
291.22	181.98	2.04	3.63	290.32	198.15	1.66	3.56
426.51	268.94	2.00	3.68	425.12	294.86	1.59	3.61
621.57	390.17	2.02	3.74	625.11	433.40	1.59	3.69
824.46	512.26	2.07	3.81	827.45	563.78	1.67	3.75
1176.88	725.88	2.10	3.93	1175.09	784.31	1.76	3.87
1558.83	970.61	2.06	4.01	1522.11	1014.29	1.76	3.97

S.N. 3216				S.N. 3218			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.43	0.27	2.03	3.46	0.43	0.23	2.62	3.51
1.12	0.71	1.98	3.46	1.12	0.62	2.60	3.51
2.10	1.33	1.97	3.46	2.13	1.17	2.60	3.51
4.40	2.81	1.94	3.46	4.36	2.39	2.61	3.51
5.80	3.69	1.97	3.47	5.88	3.22	2.62	3.51
9.87	6.25	1.99	3.47	9.68	5.21	2.69	3.51
14.01	8.84	2.00	3.47	14.23	7.63	2.71	3.51
21.90	13.87	1.98	3.47	21.81	11.64	2.73	3.52
37.35	23.89	1.94	3.47	37.14	19.79	2.73	3.52
66.41	43.30	1.86	3.48	66.61	35.86	2.69	3.53
84.07	55.43	1.81	3.49	85.39	46.49	2.64	3.54
115.21	77.30	1.73	3.50	114.96	63.52	2.58	3.55
145.62	99.05	1.67	3.51	145.80	81.47	2.53	3.56
185.31	127.53	1.62	3.53	185.84	105.15	2.47	3.57
291.22	204.18	1.54	3.56	288.65	166.46	2.39	3.61
427.13	301.25	1.52	3.61	427.59	249.02	2.35	3.65
623.62	434.38	1.57	3.68	623.81	362.15	2.36	3.72
822.53	564.36	1.64	3.74	816.56	473.67	2.37	3.79
1175.86	797.96	1.68	3.82	1180.21	680.84	2.39	3.91
1552.04	1069.30	1.62	3.86	1532.36	902.02	2.30	4.01

INTEGRATED CIRCUIT SUSCEPTIBILITY

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TABLE A-7 (CONT'D)

S.N. 3219				S.N. 3210			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.43	0.26	2.11	3.48	0.43	0.26	2.28	3.53
1.14	0.71	2.07	3.47	1.12	0.67	2.25	3.53
2.14	1.34	2.04	3.47	2.15	1.28	2.24	3.53
4.19	2.61	2.04	3.47	4.24	2.53	2.24	3.53
5.79	3.62	2.05	3.47	5.74	3.41	2.25	3.54
9.86	6.10	2.09	3.47	9.84	5.80	2.29	3.54
13.99	8.61	2.11	3.48	14.46	8.46	2.33	3.54
21.99	13.52	2.11	3.48	21.88	12.74	2.35	3.54
36.93	22.80	2.09	3.48	37.24	21.74	2.34	3.55
67.28	42.16	2.03	3.49	67.01	39.59	2.29	3.55
84.88	53.69	1.99	3.50	85.10	50.69	2.25	3.56
114.79	73.73	1.92	3.51	115.63	69.71	2.20	3.57
146.46	95.44	1.86	3.52	146.18	89.11	2.15	3.58
185.94	123.11	1.79	3.53	185.94	114.22	2.12	3.60
294.72	201.29	1.66	3.58	296.41	186.00	2.02	3.63
428.83	295.72	1.61	3.61	430.54	271.38	2.00	3.67
626.23	430.45	1.63	3.68	628.28	392.33	2.05	3.74
827.45	560.41	1.69	3.75	822.75	508.53	2.09	3.80
1177.91	781.21	1.78	3.86	1184.31	725.41	2.13	3.91
1520.65	1012.28	1.77	3.97	1554.40	955.21	2.11	3.99

INTEGRATED CIRCUIT SUSCEPTIBILITY

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TABLE A-8: 7400 FLAT PACK DATA FOR 5.6 GHz

S.N. 4211				S.N. 4213			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.28	0.12	3.64	3.45	0.82	0.09	9.38	3.48
0.59	0.26	3.53	3.45	1.53	0.22	8.32	3.48
1.08	0.49	3.43	3.45	2.53	0.44	7.61	3.48
1.83	0.85	3.34	3.45	3.71	0.70	7.22	3.48
2.90	1.40	3.17	3.47	6.37	1.35	6.72	3.48
5.21	2.49	3.19	3.46	10.47	2.41	6.39	3.48
9.49	4.61	3.14	3.45	16.36	3.97	6.15	3.48
15.96	7.78	3.12	3.46	25.68	6.42	6.02	3.48
25.87	12.67	3.10	3.46	39.98	10.27	5.90	3.49
41.63	20.47	3.08	3.46	60.78	15.90	5.82	3.49
71.09	35.16	3.06	3.47	92.28	25.00	5.67	3.49
127.73	63.87	3.01	3.48	136.29	38.17	5.53	3.50
219.41	111.29	2.95	3.50	218.44	64.29	5.31	3.51
369.14	191.66	2.85	3.54	373.27	117.08	5.04	3.54
607.05	330.25	2.64	3.59	605.31	205.98	4.68	3.58
944.97	539.88	2.43	3.68	951.69	349.11	4.36	3.65
1443.44	895.28	2.07	3.83	1444.25	574.45	4.00	3.76
2030.01	1323.74	1.86	3.94	2007.79	870.13	3.63	3.90
2725.88	1859.10	1.66	3.73	2725.88	1379.78	2.96	4.03
3482.45	2450.03	1.53	0.62	3503.57	1795.67	2.90	3.58

S.N. 4212				S.N. 4214			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.83	0.13	8.09	3.47	0.81	0.18	6.48	3.34
1.55	0.28	7.39	3.47	1.52	0.38	6.04	3.38
2.52	0.51	6.93	3.47	2.51	0.67	5.71	3.36
3.91	0.87	6.54	3.47	3.89	1.11	5.45	3.36
6.71	1.61	6.19	3.47	6.69	2.03	5.19	3.38
10.95	2.79	5.93	3.47	11.01	3.48	5.00	3.36
16.77	4.43	5.78	3.47	17.00	5.51	4.90	3.37
26.59	7.37	5.57	3.47	26.77	8.81	4.83	3.35
40.96	11.75	5.42	3.48	40.23	13.37	4.78	3.40
62.69	18.75	5.24	3.48	61.70	20.84	4.71	3.40
91.98	28.57	5.08	3.49	91.98	31.92	4.60	3.41
135.42	43.96	4.89	3.49	137.07	49.16	4.45	3.40
220.17	75.43	4.65	3.51	220.17	82.99	4.24	3.43
366.26	131.23	4.46	3.53	371.89	148.50	3.99	3.47
605.65	233.78	4.13	3.58	606.87	259.50	3.69	3.52
948.44	389.55	3.86	3.65	940.86	429.12	3.41	3.60
1453.90	637.64	3.58	3.76	1437.30	714.52	3.04	3.73
2026.83	956.20	3.26	3.90	2023.65	1091.79	2.68	3.89
2718.47	1493.52	2.60	4.03	2711.06	1565.11	2.39	3.99
3499.35	1926.81	2.59	3.42	3482.46	2131.08	2.13	3.18

TABLE A-8 (CONT'D)

S.N. 4215				S.N. 4217			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.80	0.13	7.98	3.52	0.38	0.10	5.67	3.46
1.52	0.29	7.17	3.52	0.74	0.22	5.33	3.46
2.53	0.55	6.65	3.52	1.29	0.40	5.08	3.46
3.92	0.92	6.31	3.52	2.06	0.67	4.84	3.46
6.66	1.68	5.97	3.52	3.43	1.18	4.64	3.46
10.88	2.90	5.75	3.52	5.74	2.05	4.48	3.47
16.94	4.68	5.58	3.52	10.01	3.68	4.34	3.47
26.73	7.58	5.47	3.52	16.73	6.29	4.25	3.47
40.91	11.80	5.40	3.52	26.78	10.19	4.20	3.47
62.75	18.64	5.27	3.53	43.00	16.51	4.16	3.47
92.35	28.44	5.11	3.53	72.53	28.15	4.11	3.48
136.55	43.87	4.93	3.54	127.39	50.80	3.99	3.49
219.63	74.95	4.67	3.55	220.38	91.37	3.82	3.50
374.65	136.85	4.37	3.58	373.95	163.75	3.59	3.54
618.95	251.15	3.92	3.63	607.40	281.82	3.34	3.59
956.04	401.73	3.77	3.70	958.22	473.90	3.06	3.67
1429.57	650.42	3.42	3.81	1437.83	765.41	2.74	3.79
2023.64	1002.37	3.05	3.96	2028.41	1161.20	2.42	3.94
2711.07	1440.82	2.75	4.07	2722.18	1657.33	2.15	3.98
3507.79	1995.51	2.45	3.68	3495.12	2254.81	1.90	1.92

S.N. 4216				S.N. 4218			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.39	0.12	5.00	3.55	0.83	0.13	8.19	3.53
0.70	0.23	4.74	3.54	1.54	0.27	7.49	3.52
1.24	0.44	4.54	3.48	2.53	0.51	6.97	3.52
2.04	0.74	4.39	3.48	3.93	0.86	6.59	3.52
3.52	1.33	4.21	3.50	6.72	1.61	6.22	3.52
5.93	2.31	4.09	3.48	10.95	2.77	5.97	3.52
10.01	3.98	4.00	3.50	17.04	4.50	5.78	3.52
16.66	6.73	3.93	3.50	26.78	7.27	5.66	3.52
26.76	10.93	3.89	3.51	41.16	11.47	5.55	3.52
41.53	17.07	3.86	3.51	61.70	17.51	5.47	3.51
70.89	29.44	3.82	3.51	92.49	27.24	5.31	3.52
129.08	55.14	3.69	3.52	135.94	41.63	5.14	3.53
215.33	94.42	3.58	3.54	219.63	71.43	4.88	3.54
368.72	167.70	3.42	3.57	368.86	128.22	4.59	3.57
601.31	285.45	3.24	3.61	607.39	228.72	4.24	3.62
946.70	473.32	3.01	3.68	961.27	391.74	3.90	3.71
1434.89	752.82	2.80	3.73	1432.76	631.62	3.56	3.83
2030.65	1124.20	2.57	3.73	2024.61	974.76	3.17	3.99
2725.87	1601.38	2.31	3.44	2722.16	1412.87	2.85	4.08
3524.74	2210.49	2.03	0.64	3482.46	1949.34	2.52	2.33

TABLE A-8 (CONT'D)

S.N. 4219				S.N. 4210			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.38	0.10	5.65	3.46	0.44	0.09	6.82	3.46
0.70	0.20	5.41	3.46	0.79	0.14	7.59	3.46
1.23	0.38	5.12	3.46	1.32	0.33	6.01	3.46
2.00	0.65	4.90	3.46	1.94	0.52	5.74	3.46
3.34	1.13	4.70	3.46	3.59	1.04	5.37	3.46
5.73	2.02	4.52	3.46	6.04	1.86	5.12	3.46
10.08	3.67	4.39	3.46	10.10	3.23	4.95	3.46
16.70	6.22	4.29	3.46	16.67	5.52	4.80	3.46
26.91	10.18	4.22	3.46	26.34	8.97	4.68	3.46
42.84	16.36	4.18	3.47	42.58	14.80	4.59	3.47
71.61	27.77	4.11	3.47	72.40	25.93	4.46	3.47
127.30	50.40	4.02	3.48	126.97	47.18	4.30	3.48
220.27	89.79	3.90	3.50	220.49	85.31	4.12	3.50
370.51	157.21	3.72	3.53	372.85	151.24	3.92	3.52
606.18	270.01	3.51	3.58	602.18	257.71	3.69	3.57
966.95	454.14	3.28	3.66	949.52	430.31	3.44	3.65
1438.10	721.70	2.99	3.76	1369.26	660.52	3.17	3.74
2022.06	1078.66	2.73	3.84	1874.04	975.39	2.84	3.85
2711.06	1524.86	2.50	3.84	2451.62	1355.31	2.57	3.94
3482.46	2084.48	2.23	2.11	3105.93	1812.12	2.34	3.76

TABLE A-9: 741 TO-5 DATA FOR 220 MHz

S.N. 121.1				S.N. 124.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.97	-0.00	-0.00	0.00	-4.97
0.59	0.20	4.63	-7.23	0.56	0.18	4.93	-7.30
1.57	0.51	4.85	-8.87	111.57	39.97	4.46	-3.89
33.39	10.22	5.14	-8.89	334.23	117.76	4.53	-8.83
475.56	173.21	4.39	-8.53	429.14	148.57	4.61	-7.27
528.76	195.45	4.32	-7.68	459.54	159.40	4.60	-5.29
605.11	224.10	4.31	-6.34	465.94	163.18	4.56	-0.24
655.03	244.60	4.28	-5.12	491.74	179.32	4.38	6.89
932.64	372.22	3.99	-3.98	532.26	196.50	4.33	4.01
1312.53	440.34	4.74	-2.52	600.95	226.00	4.25	-1.08
1567.80	540.42	4.63	0.73	860.31	321.93	4.27	-3.77
2004.07	840.04	3.78	4.78	1088.65	385.55	4.51	6.79

S.N. 122.1				S.N. 125.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.94	-0.00	-0.00	0.00	-4.97
0.59	0.19	4.87	-7.29	1.35	0.44	4.91	-8.99
2.76	0.90	4.85	-8.94	226.35	81.64	4.43	-9.04
33.55	9.91	5.30	-8.94	433.63	152.19	4.55	-7.54
68.90	24.79	4.44	-8.94	442.92	155.56	4.54	-2.72
400.69	140.04	4.57	-8.31	446.73	157.88	4.52	2.29
424.31	147.01	4.60	-7.21	469.73	171.34	4.38	8.65
434.96	150.61	4.61	-5.98	560.62	213.85	4.19	4.81
437.40	151.46	4.61	-3.99	650.26	249.93	4.15	0.25
442.79	155.13	4.56	2.84	728.53	279.12	4.17	-1.73
453.30	161.34	4.49	8.61	1878.01	705.25	4.25	6.48
2134.52	950.87	3.51	6.20	1009.46	318.87	5.00	8.21

S.N. 123.1			
P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.98
0.60	0.20	4.73	-7.29
3.56	1.17	4.82	-8.90
209.56	75.48	4.43	-8.90
417.84	149.79	4.46	-7.94
478.62	171.89	4.45	-6.86
526.35	189.46	4.44	-5.80
557.03	202.80	4.39	-4.63
578.43	213.25	4.33	-2.70
805.83	316.33	4.06	-4.34
1379.58	490.83	4.49	-0.28
2038.96	877.36	3.66	5.27

TABLE A-10: 741 TO-5 DATA FOR 910 MHz

S.N. 221.1				S.N. 224.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.96	0.00	0.00	0.00	-4.97
0.40	0.13	4.82	-5.30	0.25	0.10	4.06	-5.17
2.06	0.48	6.37	-6.97	1.36	0.37	5.66	-6.33
4.19	0.89	6.72	-8.61	27.25	5.78	6.73	-8.89
46.60	10.75	6.37	-8.89	269.36	47.03	7.58	-8.08
227.74	43.16	7.22	-8.86	319.04	41.02	8.91	-1.47
299.45	52.31	7.58	-6.92	329.97	41.26	9.03	2.18
332.47	51.85	8.07	-3.47	352.34	43.60	9.08	8.64
339.74	50.38	8.29	-1.04	810.84	96.69	9.24	7.76
349.24	49.05	8.53	7.30	942.13	124.60	8.79	7.49
339.74	50.38	8.29	-1.04	1317.31	260.98	7.03	6.77
349.24	49.05	8.53	7.30	1785.64	468.90	5.81	5.54

S.N. 222.1				S.N. 225.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.95	-0.00	-0.00	0.00	-4.97
0.29	0.11	4.09	-5.17	0.30	0.11	4.22	-5.25
1.70	0.46	5.72	-6.60	1.17	0.33	5.50	-6.33
16.88	3.81	6.46	-8.94	3.18	0.71	6.49	-8.38
46.03	10.75	6.32	-8.94	11.22	2.50	6.52	-9.05
235.09	43.48	7.33	-8.90	264.84	33.29	9.01	-7.55
289.13	46.47	7.94	-5.52	317.11	28.21	10.51	-2.75
303.86	38.18	9.01	-2.60	332.60	29.41	10.53	0.63
331.02	37.32	9.48	3.24	349.51	27.91	10.98	9.63
354.92	36.35	9.90	8.64	555.53	29.99	12.68	9.41
1140.43	205.05	7.45	7.46	981.70	110.37	9.49	8.61
1974.04	549.12	5.56	5.89	1776.62	438.29	6.08	6.48

S.N. 223.1			
P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.98
0.31	0.11	4.34	-5.22
14.27	2.95	6.85	-8.90
105.33	20.06	7.20	-8.90
295.46	44.67	8.20	-6.29
326.96	45.59	8.56	1.39
336.69	36.91	9.60	3.97
337.09	34.38	9.91	7.92
371.51	28.43	11.16	8.14
634.10	53.45	10.74	7.85
1153.15	193.02	7.76	6.97
1964.55	526.25	5.72	5.15

INTEGRATED CIRCUIT SUSCEPTIBILITY

TABLE A-11: 741 TO-5 DATA FOR 3.0 GHz

S.N. 321.1				S.N. 324.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.97	0.00	0.00	0.00	-4.97
0.47	0.30	1.96	-5.05	0.43	0.28	1.81	-5.04
1.86	1.13	2.18	-5.44	0.98	0.61	2.05	-5.17
13.32	7.68	2.39	-7.34	3.95	2.37	2.21	-6.12
39.26	21.96	2.52	-7.41	42.10	23.69	2.50	-8.89
216.10	114.43	2.76	-6.05	217.45	115.85	2.73	-8.89
222.05	117.55	2.76	-5.14	248.78	130.74	2.79	-5.42
240.11	126.34	2.79	6.57	256.03	134.91	2.78	6.45
409.25	220.20	2.69	6.28	273.56	144.35	2.78	8.56
640.67	350.59	2.62	5.78	568.50	308.68	2.65	8.17
1281.39	712.13	2.55	4.41	1354.42	754.11	2.54	6.54
2496.51	1363.81	2.63	2.45	2736.13	1465.39	2.71	3.45

S.N. 322.1				S.N. 325.1			
0.00	0.00	0.00	-4.99	0.00	0.00	0.00	-4.96
0.94	0.61	1.90	-5.21	0.60	0.38	1.96	-5.08
32.02	19.28	2.20	-8.85	1.66	1.02	2.11	-5.41
104.14	60.94	2.33	-8.85	29.52	16.89	2.42	-9.05
206.86	118.72	2.41	-6.57	122.87	67.32	2.61	-9.07
215.17	123.52	2.41	3.31	232.98	122.88	2.78	-8.02
340.36	197.69	2.36	7.53	241.42	127.02	2.79	2.65
461.99	270.86	2.32	6.98	260.08	137.44	2.77	9.49
599.25	353.58	2.29	6.46	564.24	309.08	2.61	8.91
783.49	465.36	2.26	5.79	805.36	448.92	2.54	7.82
1139.92	677.98	2.26	4.67	1314.14	741.85	2.48	6.10
1712.36	1007.21	2.30	3.28	2493.02	1380.49	2.57	3.33

S.N. 323.1			
-0.00	-0.00	0.00	-4.97
0.57	0.36	1.92	-5.09
5.32	3.21	2.19	-6.81
20.60	12.01	2.34	-8.90
197.60	107.73	2.63	-8.89
213.20	115.58	2.66	-6.82
219.74	118.82	2.67	-0.10
221.52	119.89	2.67	3.98
223.62	121.05	2.67	8.06
572.28	320.04	2.52	7.37
1109.70	631.49	2.45	6.06
2372.54	1315.08	2.56	2.66

TABLE A-12: 741 TO-5 DATA FOR 5.6 GHz

S.N. 421.1				S.N. 424.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.97	0.00	0.00	0.00	-4.97
3.23	0.72	6.51	-4.99	2.39	0.56	6.30	-4.98
84.65	11.82	8.55	-5.84	24.35	5.33	6.60	-5.17
134.41	17.24	8.92	-6.42	115.21	17.89	8.09	-6.57
614.94	82.58	8.72	-7.26	162.58	22.05	8.68	-7.29
3313.93	473.56	8.45	-5.70	283.11	35.39	9.03	-8.75
3482.35	495.98	8.46	3.10	454.84	64.72	8.47	-8.91
3747.45	544.75	8.38	5.68	1218.55	188.70	8.10	-8.94
2601.00	370.55	8.46	-5.50	2063.14	334.19	7.91	-8.96
3687.19	559.82	8.19	5.70	2905.32	485.20	7.77	-5.22
4227.04	658.98	8.07	5.50	2891.26	472.57	7.87	-1.34
5572.00	958.45	7.64	5.15	3265.02	564.85	7.62	7.64

S.N. 422.1				S.N. 425.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.99	0.00	0.00	0.00	-4.97
2.26	0.49	6.69	-5.00	2.61	0.56	6.72	-4.98
39.55	5.40	8.65	-5.21	36.71	5.64	8.13	-5.27
86.55	10.06	9.35	-5.68	153.44	18.17	9.27	-6.94
164.01	17.06	9.83	-6.62	358.38	40.07	9.52	-8.99
411.25	38.42	10.30	-8.78	1339.92	198.69	8.29	-9.09
972.22	98.28	9.95	-8.86	1955.99	286.52	8.34	-9.12
2089.66	251.49	9.20	-8.87	2505.70	387.99	8.10	-9.14
3611.61	512.00	8.48	-8.23	3076.92	484.77	8.03	-9.11
4111.63	569.97	8.58	0.38	3246.32	523.62	7.92	-6.17
4885.90	698.91	8.45	6.39	3302.61	540.83	7.86	-0.35
5975.14	971.40	7.89	5.94	3490.11	575.96	7.82	8.51

S.N. 423.1			
P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.98
2.44	0.63	5.87	-4.99
27.88	5.63	6.94	-5.21
138.53	16.12	9.34	-6.96
180.95	20.10	9.54	-7.58
618.43	84.51	8.64	-8.92
1420.91	183.02	8.90	-8.94
2698.20	370.48	8.62	-8.62
2937.10	416.48	8.48	-7.52
3116.99	449.77	8.41	-4.08
3235.12	474.22	8.34	6.48
5527.05	902.14	7.87	7.02

TABLE A-13: 741 TO-5 DATA FOR 9.1 GHz

S.N. 521.1				S.N. 524.1			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.98	0.00	0.00	0.00	-4.98
1.05	0.53	3.00	-4.98	1.15	0.55	3.16	-4.98
4.93	2.61	2.80	-4.98	8.35	4.28	2.90	-4.98
42.63	21.98	2.88	-5.04	23.79	12.04	2.96	-5.00
79.71	40.23	2.97	-5.11	64.58	31.84	3.07	-5.06
153.30	77.18	2.98	-5.30	93.77	46.22	3.07	-5.12
377.77	188.94	3.01	-6.15	119.47	58.50	3.10	-5.17
606.89	303.47	3.01	-6.76	236.20	115.10	3.12	-5.50
846.06	422.48	3.02	-7.01	365.12	174.80	3.20	-5.98
985.72	488.33	3.05	-7.11	567.43	275.63	3.14	-6.82
1679.43	841.32	3.00	-7.07	1053.02	517.03	3.09	-8.48
2215.58	1109.29	3.00	-6.95	2156.72	1098.29	2.93	-8.81

S.N. 522.1				S.N. 525.1			
-0.00	-0.00	0.00	-5.00	0.00	0.00	0.00	-4.97
1.19	0.62	2.87	-5.00	1.20	0.60	3.04	-4.97
4.56	2.38	2.82	-5.01	6.21	3.24	2.83	-4.98
30.88	15.79	2.91	-5.03	31.33	15.74	2.99	-5.01
74.55	37.62	2.97	-5.10	96.98	47.86	3.07	-5.16
147.93	73.73	3.02	-5.27	161.27	79.78	3.06	-5.37
424.66	209.97	3.06	-6.40	340.20	166.11	3.11	-6.20
665.03	329.46	3.05	-7.50	517.31	253.48	3.10	-7.09
810.13	403.23	3.03	-8.11	813.85	400.65	3.08	-8.48
927.47	456.58	3.08	-8.46	1363.05	678.94	3.03	-8.95
1529.17	773.32	2.96	-8.75	1893.89	935.14	3.06	-8.98
2127.60	1063.48	3.01	-8.77	2390.99	1216.78	2.93	-9.00

S.N. 523.1			
-0.00	-0.00	0.00	-4.98
1.22	0.60	3.09	-4.98
11.06	5.72	2.86	-5.00
48.74	24.46	2.99	-5.06
71.29	35.45	3.03	-5.11
135.27	66.36	3.09	-5.28
248.19	121.36	3.11	-5.72
513.63	251.09	3.11	-6.98
741.62	363.22	3.10	-7.99
973.46	478.05	3.09	-8.69
1656.43	822.11	3.04	-8.82
2072.85	1024.89	3.06	-8.83

TABLE A-14: 741 FLAT PACK DATA FOR 220 MHz

S.N. 131				S.N. 133			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.94	-0.00	-0.00	0.00	-4.94
0.34	0.06	7.58	-6.79	0.36	0.06	7.67	-6.82
0.57	0.10	7.78	-7.63	0.60	0.10	7.75	-7.69
0.88	0.16	7.44	-8.49	0.91	0.16	7.47	-8.58
1.37	0.26	7.17	-9.09	1.40	0.27	7.19	-9.26
2.13	0.43	6.96	-9.13	2.19	0.44	6.95	-9.31
3.31	0.69	6.78	-9.13	3.38	0.71	6.78	-9.31
5.14	1.09	6.73	-9.13	5.23	1.11	6.73	-9.30
7.77	1.67	6.67	-9.11	7.91	1.69	6.69	-9.29
12.80	2.74	6.69	-9.10	12.97	2.75	6.73	-9.28
22.54	4.87	6.66	-9.07	22.78	4.87	6.70	-9.26
34.11	7.54	6.56	-9.05	34.39	7.49	6.62	-9.25
60.18	12.33	6.89	-8.99	62.57	12.66	6.94	-9.17
128.46	20.49	7.97	10.06	130.70	20.51	8.04	10.14
221.05	38.39	7.60	10.01	225.28	34.94	8.09	10.04
295.63	62.74	6.73	9.94	305.80	61.60	6.96	9.90
420.31	95.70	6.43	-4.46	433.54	88.00	6.93	-5.47
617.59	175.24	5.47	-7.73	637.60	150.11	6.28	-8.29
795.77	292.21	4.35	-6.98	812.21	251.23	5.10	-7.61
985.09	524.09	2.74	7.63	986.50	505.37	2.90	6.87

S.N. 132				S.N. 134			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.94	-0.00	-0.00	0.00	-4.98
0.35	0.06	7.60	-6.84	0.36	0.05	8.23	-6.96
0.58	0.09	7.90	-7.68	0.60	0.09	8.17	-7.76
0.90	0.16	7.49	-8.53	0.92	0.15	7.76	-8.60
1.38	0.26	7.23	-9.08	1.41	0.26	7.41	-8.67
2.16	0.43	6.97	-9.12	2.20	0.43	7.13	-8.70
3.35	0.70	6.82	-9.12	3.39	0.68	6.97	-8.69
5.18	1.10	6.75	-9.12	5.23	1.07	6.87	-8.68
7.86	1.68	6.69	-9.10	7.91	1.65	6.80	-8.67
12.89	2.74	6.73	-9.09	12.93	2.70	6.80	-8.64
22.73	4.90	6.66	-9.07	22.69	4.80	6.75	-8.62
34.34	7.53	6.59	-9.05	34.25	7.40	6.66	-8.59
61.12	12.34	6.95	-9.00	62.50	12.52	6.98	-8.55
127.35	21.45	7.73	-1.12	129.07	21.44	7.80	9.69
220.33	33.79	8.14	9.88	222.96	34.01	8.17	9.59
302.04	57.29	7.22	9.76	303.11	53.19	7.17	9.45
429.04	91.56	6.71	-0.23	429.41	37.52	6.91	-2.60
640.97	152.12	6.25	-8.06	637.60	155.03	6.14	-7.58
807.13	244.17	5.19	-7.47	810.94	255.67	5.01	-7.02
972.45	497.58	2.91	6.96	975.25	495.07	2.94	6.86

TABLE A-14 (CONT'D)

S.N. 135				S.N. 137			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.93	-0.00	-0.00	0.00	-4.94
0.37	0.05	8.47	-6.93	0.38	0.05	8.45	-6.90
0.61	0.09	8.21	-7.70	0.63	0.09	8.25	-7.65
0.93	0.15	7.89	-8.77	0.96	0.16	7.86	-8.82
1.43	0.25	7.51	-8.85	1.47	0.27	7.40	-8.91
2.23	0.42	7.21	-8.87	2.27	0.44	7.17	-8.94
3.43	0.68	7.02	-8.87	3.49	0.70	6.99	-8.94
5.29	1.07	6.95	-8.86	5.37	1.10	6.89	-8.93
7.98	1.64	6.87	-8.85	8.07	1.68	6.81	-8.92
13.03	2.68	6.87	-8.84	13.12	2.73	6.81	-8.91
22.81	4.74	6.82	-8.81	22.88	4.84	6.75	-8.88
34.37	7.29	6.73	-8.80	34.37	7.40	6.67	-8.87
62.68	12.19	7.11	-8.76	65.01	12.74	7.08	-8.82
129.94	20.79	7.96	9.00	133.79	21.64	7.91	9.38
224.08	34.01	8.19	8.90	230.21	34.66	8.22	9.75
305.88	58.08	7.22	8.77	315.36	62.71	7.01	9.57
430.69	87.05	6.94	-3.33	443.24	88.66	6.99	-4.42
634.24	149.74	6.27	-7.57	653.39	160.01	6.11	-8.00
803.34	244.03	5.17	-6.98	830.13	260.33	5.04	-7.18
965.47	474.45	3.09	6.09	986.50	499.12	2.96	6.90

S.N. 136				S.N. 133			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.94	-0.00	-0.00	0.00	-4.95
0.37	0.06	8.19	-6.85	0.38	0.06	8.35	-6.94
0.62	0.10	8.08	-7.62	0.63	0.10	8.25	-7.76
0.94	0.16	7.68	-8.57	0.97	0.16	7.84	-8.84
1.45	0.27	7.27	-8.66	1.48	0.26	7.48	-8.95
2.25	0.45	7.02	-8.68	2.29	0.43	7.22	-8.97
3.45	0.71	6.86	-8.69	3.51	0.70	7.02	-8.97
5.32	1.12	6.78	-8.69	5.39	1.10	6.90	-8.96
8.01	1.70	6.74	-8.69	8.10	1.67	6.85	-8.95
13.05	2.76	6.74	-8.69	13.15	2.72	6.85	-8.94
22.83	4.86	6.72	-8.69	22.90	4.82	6.76	-8.91
34.31	7.39	6.67	-8.70	34.31	7.35	6.69	-8.89
63.42	12.60	7.02	-8.69	66.13	13.12	7.02	-8.84
132.03	21.09	7.97	8.86	137.69	20.50	8.27	9.95
227.00	35.55	8.05	8.77	234.18	36.80	8.04	9.85
305.11	59.72	7.08	8.65	312.70	64.64	6.85	9.72
432.07	92.41	6.70	-5.09	432.25	99.90	6.36	1.82
629.78	164.54	5.83	-7.91	636.48	160.41	5.99	-6.61
799.55	264.67	4.80	-8.02	812.21	257.28	4.99	-6.70
976.65	396.54	3.91	-7.48	975.25	475.24	3.12	7.24

TABLE A-14 (CONT'D)

S.N. 139				S.N. 130			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.93	-0.00	-0.00	0.00	-4.93
0.39	0.05	8.66	-7.00	0.40	0.07	7.74	-6.96
0.65	0.09	8.37	-7.77	0.65	0.11	7.35	-7.85
0.98	0.16	7.93	-8.72	0.99	0.17	7.62	-8.76
1.50	0.27	7.51	-8.78	1.51	0.28	7.31	-9.17
2.32	0.43	7.28	-8.80	2.31	0.45	7.08	-9.20
3.55	0.70	7.08	-8.79	3.53	0.72	6.90	-9.20
5.44	1.09	6.96	-8.80	5.41	1.12	6.82	-9.19
8.16	1.66	6.91	-8.78	8.10	1.71	6.75	-9.18
13.23	2.70	6.90	-8.77	13.11	2.76	6.76	-9.17
23.00	4.77	6.83	-8.75	22.73	4.84	6.72	-9.14
34.39	7.28	6.75	-8.74	34.14	7.42	6.63	-9.13
64.08	12.44	7.12	-8.70	63.78	12.74	6.99	-9.06
132.29	20.75	8.05	8.85	130.75	22.47	7.65	6.22
224.81	33.01	8.33	8.74	223.49	33.05	8.30	9.99
304.11	59.87	7.06	8.61	303.96	57.64	7.22	9.87
425.85	88.34	6.83	-1.19	425.85	87.82	6.86	0.18
626.44	147.12	6.29	-7.56	629.78	145.05	6.38	-7.86
789.49	230.01	5.36	-7.32	790.74	232.54	5.32	-7.50
943.31	446.84	3.25	6.03	941.93	466.59	3.05	7.17

TABLE A-15: 741 FLAT PACK DATA FOR 910 MHz

S.N. 231				S.N. 233			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.93	-0.00	-0.00	0.00	-4.92
0.92	0.01	19.68	-6.90	1.53	0.03	17.69	-7.60
1.23	0.03	15.86	-7.35	1.93	0.07	14.20	-7.99
1.53	0.07	13.56	-7.69	2.31	0.12	12.86	-8.35
2.02	0.14	11.74	-8.19	2.86	0.13	13.42	-9.10
2.60	0.22	10.72	-8.99	4.18	0.41	10.05	-9.20
3.54	0.39	9.54	-9.23	6.29	0.82	8.83	-9.21
4.75	0.63	8.76	-9.26	9.25	1.42	8.15	-9.21
6.32	0.96	8.18	-9.26	15.06	2.72	7.44	-9.19
8.77	1.50	7.67	-9.25	23.70	4.73	7.00	-9.18
12.01	2.25	7.28	-9.25	36.18	7.77	6.68	-9.15
16.95	3.45	6.91	-9.24	59.58	13.66	6.40	-9.10
23.90	5.14	6.67	-9.22	98.87	23.58	6.23	-9.02
33.21	7.52	6.45	-9.20	161.14	39.11	6.15	-8.92
50.30	11.94	6.25	-9.17	276.17	64.48	6.32	9.75
73.80	18.10	6.10	-9.12	457.38	113.01	6.07	9.53
106.53	26.60	6.03	-9.05	642.77	165.56	5.89	9.25
161.34	39.92	6.07	-8.98	844.58	227.98	5.69	8.97
283.07	66.47	6.29	9.92	1094.67	314.27	5.42	8.59
843.94	230.77	5.63	9.09	1336.85	402.80	5.21	8.18

S.N. 232				S.N. 234			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.95	-0.00	-0.00	0.00	-4.95
0.99	0.01	20.82	-7.10	1.32	0.02	17.84	-7.47
1.21	0.04	15.34	-7.41	1.51	0.04	15.73	-7.69
1.54	0.07	13.68	-7.86	1.95	0.10	13.07	-8.15
2.01	0.13	11.78	-8.37	2.26	0.14	12.12	-8.58
2.79	0.25	10.55	-9.26	2.94	0.24	10.85	-8.88
4.19	0.51	9.16	-9.34	4.31	0.47	9.60	-8.93
6.26	0.93	8.27	-9.35	6.27	0.87	8.59	-8.94
9.31	1.59	7.67	-9.35	9.38	1.52	7.90	-8.93
14.94	2.67	7.16	-9.34	15.00	2.78	7.32	-8.92
23.16	4.86	6.78	-9.32	23.50	4.80	6.90	-8.89
35.80	7.99	6.52	-9.30	35.78	7.78	6.65	-8.86
59.51	13.97	6.29	-9.26	59.71	13.79	6.37	-8.80
97.98	23.76	6.15	-9.18	97.82	23.28	6.23	-8.72
161.44	38.93	6.18	-9.12	161.91	38.61	6.23	-8.60
274.90	62.75	6.42	9.85	275.53	64.00	6.34	9.82
463.32	110.07	6.24	9.58	464.78	113.89	6.11	9.59
739.18	187.25	5.96	9.16	738.78	195.28	5.78	9.24
964.68	263.91	5.63	8.73	954.88	266.90	5.54	8.92
1316.31	399.95	5.17	8.14	1316.58	399.23	5.18	8.35

TABLE A-15 (CONT'D)

S.N. 235				S.N. 237			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.95	-0.00	-0.00	0.00	-4.98
1.26	0.01	21.84	-7.34	0.77	0.01	18.85	-6.69
1.52	0.04	15.76	-7.64	0.93	0.03	15.33	-6.94
1.98	0.10	13.00	-8.11	1.39	0.09	12.10	-7.56
2.91	0.26	10.48	-8.98	1.95	0.15	11.03	-8.20
4.20	0.50	9.25	-9.05	2.92	0.32	9.65	-9.11
6.37	0.94	8.32	-9.06	5.49	0.85	8.08	-9.19
9.40	1.58	7.75	-9.06	9.88	1.87	7.22	-9.18
15.22	2.94	7.14	-9.04	19.41	4.31	6.53	-9.16
23.68	4.97	6.78	-9.01	29.91	7.06	6.27	-9.14
35.63	7.91	6.54	-8.98	46.44	11.52	6.05	-9.10
59.71	14.03	6.29	-8.93	64.72	16.51	5.93	-9.06
98.06	23.75	6.16	-8.84	77.35	19.99	5.88	-9.03
161.24	39.27	6.13	-8.75	101.15	26.57	5.81	-8.97
274.52	62.18	6.45	9.78	138.56	35.85	5.87	-8.93
463.97	108.96	6.29	9.53	198.81	47.79	6.19	10.05
648.04	158.48	6.12	9.24	258.75	62.27	6.19	10.02
840.51	216.87	5.88	8.95	320.24	77.88	6.14	9.95
1070.53	298.17	5.55	8.55	686.10	182.49	5.75	9.55
1321.37	392.83	5.27	8.13	1340.86	430.40	4.94	8.44

S.N. 236				S.N. 238			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-5.03	0.00	0.00	0.00	-5.00
1.24	0.02	18.42	-7.44	1.08	0.01	20.75	-7.06
1.42	0.04	15.57	-7.66	1.23	0.03	16.31	-7.26
1.68	0.07	14.12	-7.96	1.41	0.04	15.13	-7.50
2.18	0.13	12.15	-8.47	1.94	0.11	12.41	-8.04
3.01	0.26	10.68	-9.20	2.95	0.26	10.51	-9.14
5.46	0.72	8.79	-9.27	5.47	0.75	8.65	-9.33
10.21	1.74	7.69	-9.26	10.31	1.80	7.58	-9.33
19.24	3.80	7.04	-9.24	15.27	2.94	7.15	-9.33
29.71	6.33	6.71	-9.22	21.06	4.35	6.85	-9.32
45.13	10.18	6.47	-9.19	32.45	7.21	6.53	-9.30
63.64	14.85	6.32	-9.15	47.35	11.04	6.32	-9.28
74.88	17.64	6.28	-9.13	77.64	17.37	6.50	-9.22
99.85	23.97	6.20	-9.09	117.13	26.85	6.40	-9.14
144.52	35.21	6.13	-9.02	218.54	47.85	6.60	10.10
194.22	104.09	2.71	-7.03	317.66	69.50	6.60	10.07
324.47	173.58	2.72	-7.39	344.44	81.64	6.25	10.03
475.00	258.65	2.64	-7.85	474.18	115.12	6.15	9.98
653.14	382.70	2.32	-7.78	659.78	167.73	5.95	9.87
1207.06	673.10	2.54	-8.08	1310.47	397.17	5.18	9.03

TABLE A-15 (CONT'D)

239				230			
S.N.	P INC	P ABS	V OUT	S.N.	P INC	P ABS	V OUT
		C.F.				C.F.	
	-0.00	-0.00	-4.96		-0.00	-0.00	-4.99
	1.06	0.02	-7.11		1.23	0.02	-7.41
	1.31	0.04	-7.49		1.40	0.04	-7.66
	1.37	0.05	-7.57		1.90	0.07	-8.18
	1.45	0.07	-7.66		2.16	0.14	-8.49
	2.09	0.16	-8.35		2.94	0.26	-9.07
	3.27	0.35	-9.22		5.43	0.73	-9.16
	5.39	0.77	-9.28		8.37	1.35	-9.16
	9.67	1.77	-9.28		15.64	3.03	-9.14
	19.18	4.12	-9.26		21.54	4.48	-9.12
	26.60	5.98	-9.25		34.23	7.63	-9.09
	33.76	7.95	-9.24		49.05	11.59	-9.05
	47.64	11.64	-9.21		64.86	15.45	-9.01
	67.19	17.04	-9.18		103.54	25.55	-8.94
	104.70	26.90	-9.10		146.72	36.46	-8.86
	155.58	39.67	-9.06		173.34	21.10	9.96
	192.91	46.37	10.04		320.10	78.29	9.90
	320.51	84.51	9.91		481.70	123.51	9.80
	502.25	137.77	9.67		652.38	175.13	9.63
	1446.87	476.02	8.28		1367.26	434.23	8.59

TABLE A-16: 741 FLAT PACK DATA FOR 3.0 GHz

S.N. 331				S.N. 333			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.96	-0.00	-0.00	0.00	-4.98
0.06	0.04	2.14	-5.01	0.06	0.03	2.47	-5.03
0.10	0.06	2.13	-5.04	0.10	0.06	2.41	-5.06
0.15	0.09	2.15	-5.09	0.15	0.08	2.45	-5.11
0.23	0.13	2.42	-5.16	0.23	0.12	2.72	-5.17
0.45	0.26	2.38	-5.38	0.45	0.24	2.68	-5.38
0.82	0.48	2.35	-5.77	0.84	0.46	2.65	-5.76
1.71	1.00	2.34	-6.60	1.87	1.02	2.65	-6.66
2.94	1.72	2.33	-7.48	2.95	1.62	2.61	-7.40
5.15	3.03	2.31	-8.72	5.15	2.85	2.57	-8.58
9.30	5.48	2.29	-8.83	9.57	5.34	2.53	-9.04
18.43	10.93	2.27	-8.83	18.14	10.20	2.50	-8.98
31.19	18.61	2.24	-8.81	29.94	16.92	2.48	-9.03
58.12	34.87	2.22	-8.76	60.31	34.44	2.43	-9.01
94.08	55.35	2.30	-8.67	91.74	51.36	2.52	-8.92
187.46	108.09	2.39	9.83	189.23	106.75	2.49	9.40
305.97	181.25	2.27	9.66	371.38	220.80	2.26	9.04
496.06	305.11	2.11	9.28	560.39	344.05	2.12	8.54
808.91	512.99	1.98	8.52	812.89	513.18	2.00	7.87
1136.77	744.15	1.84	7.67	1139.74	738.84	1.88	7.02

S.N. 332				S.N. 334			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.94	-0.00	-0.00	0.00	-4.96
0.06	0.04	2.16	-5.00	0.06	0.04	1.97	-5.01
0.10	0.06	2.14	-5.03	0.10	0.06	1.98	-5.04
0.15	0.09	2.17	-5.07	0.14	0.09	1.98	-5.08
0.23	0.13	2.44	-5.15	0.23	0.13	2.27	-5.15
0.45	0.26	2.41	-5.36	0.46	0.27	2.24	-5.34
0.82	0.47	2.40	-5.73	0.82	0.49	2.23	-5.66
1.75	1.02	2.37	-6.56	1.70	1.02	2.21	-6.34
2.99	1.72	2.38	-7.45	2.86	1.67	2.33	-6.15
9.25	5.40	2.34	-8.73	5.41	3.15	2.36	-6.44
17.98	10.53	2.32	-8.72	10.65	6.24	2.32	-7.08
32.11	18.93	2.30	-8.70	22.33	13.14	2.30	-9.11
59.74	35.54	2.26	-8.65	33.28	19.66	2.29	-9.12
97.23	56.52	2.36	-8.56	57.20	33.98	2.26	-9.09
188.08	109.04	2.37	9.05	107.01	64.42	2.20	-9.00
312.52	192.99	2.09	8.79	182.10	107.73	2.28	10.13
529.27	329.81	2.05	8.30	328.50	200.72	2.14	9.92
800.16	515.07	1.91	7.62	521.16	338.06	1.88	9.43
915.46	594.92	1.87	7.12	805.57	519.13	1.91	8.83
1144.97	759.02	1.79	6.70	1142.23	737.89	1.90	7.97

TABLE A-16 (CONT'D)

S.N. 335				S.N. 337			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.97	-0.00	-0.00	0.00	-4.96
0.06	0.04	2.20	-5.01	0.06	0.03	2.42	-5.01
0.10	0.06	2.20	-5.04	0.10	0.06	2.38	-5.05
0.14	0.09	2.14	-5.06	0.15	0.08	2.34	-5.09
0.24	0.14	2.40	-5.12	0.23	0.13	2.66	-5.18
0.44	0.26	2.35	-5.26	0.45	0.25	2.66	-5.42
0.83	0.49	2.32	-5.53	0.82	0.45	2.61	-5.82
1.73	1.02	2.28	-6.15	1.79	0.99	2.57	-6.75
2.88	1.71	2.27	-6.85	2.88	1.59	2.57	-7.60
4.97	2.96	2.25	-7.89	5.18	2.88	2.55	-8.93
9.61	5.76	2.22	-9.38	9.30	5.21	2.52	-9.05
18.61	11.26	2.18	-9.53	17.73	9.97	2.50	-9.05
31.94	19.40	2.17	-9.54	31.65	17.92	2.47	-9.03
59.24	36.32	2.13	-9.52	58.00	33.11	2.44	-8.97
94.24	65.18	1.60	-9.50	99.71	55.78	2.52	-8.85
201.91	119.30	2.29	9.87	198.39	112.65	2.46	9.92
312.65	195.84	2.03	9.62	329.71	195.25	2.28	9.77
532.33	336.91	1.99	9.13	515.46	316.02	2.12	9.38
831.22	509.68	2.12	8.39	790.62	501.18	1.98	8.62
1155.45	727.36	2.01	7.64	1156.95	756.34	1.85	7.60

S.N. 336				S.N. 338			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.97	-0.00	-0.00	0.00	-4.96
0.06	0.04	2.07	-5.03	0.06	0.04	2.13	-5.03
0.10	0.06	2.06	-5.07	0.10	0.06	2.16	-5.06
0.14	0.09	2.05	-5.11	0.14	0.09	2.14	-5.11
0.33	0.20	2.30	-5.29	0.23	0.14	2.35	-5.20
0.51	0.30	2.30	-5.48	0.45	0.26	2.40	-5.44
0.84	0.50	2.28	-5.82	0.85	0.49	2.39	-5.87
1.81	1.08	2.26	-6.71	1.94	1.12	2.37	-6.88
2.93	1.74	2.27	-7.56	2.91	1.68	2.33	-7.62
5.70	3.39	2.26	-8.73	5.31	3.08	2.37	-8.62
10.46	6.25	2.24	-8.79	9.88	5.74	2.36	-8.69
17.71	10.61	2.22	-8.78	18.34	10.72	2.33	-8.68
30.29	18.22	2.21	-8.76	31.28	18.35	2.32	-8.66
57.20	34.64	2.18	-8.71	59.24	35.02	2.28	-8.60
92.11	54.68	2.27	-8.65	104.76	60.60	2.38	-8.44
184.67	109.25	2.28	8.94	183.54	106.56	2.36	9.33
297.94	182.72	2.12	8.68	300.78	181.26	2.20	9.06
534.83	343.42	1.92	8.10	549.80	347.45	1.99	8.46
811.01	537.69	1.78	7.40	816.04	532.48	1.85	7.71
1141.23	778.12	1.66	6.57	1143.47	759.42	1.78	6.83

TABLE A-16 (CONT'D)

S.N. 339				S.N. 330			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.97	-0.00	-0.00	0.00	-4.93
0.06	0.04	2.02	-5.02	0.06	0.04	2.25	-4.99
0.10	0.06	2.07	-5.05	0.10	0.06	2.23	-5.02
0.14	0.09	2.07	-5.08	0.15	0.09	2.49	-5.07
0.23	0.14	2.27	-5.15	0.45	0.25	2.52	-5.38
0.44	0.26	2.31	-5.33	0.81	0.45	2.53	-5.77
0.83	0.49	2.30	-5.68	1.73	0.97	2.51	-6.65
1.86	1.08	2.36	-6.52	2.90	1.63	2.51	-7.56
2.93	1.71	2.34	-7.21	5.42	3.05	2.50	-8.91
5.37	3.14	2.33	-8.71	18.53	10.55	2.45	-8.99
9.60	5.63	2.31	-8.83	32.38	18.55	2.42	-8.97
19.53	11.52	2.29	-8.84	58.99	34.08	2.38	-8.92
31.62	18.73	2.27	-8.82	93.78	54.54	2.35	-8.84
57.94	34.54	2.25	-8.77	181.90	103.40	2.45	9.83
97.15	56.71	2.34	-8.69	231.72	134.72	2.36	9.73
190.06	110.58	2.35	8.69	330.12	198.51	2.21	9.51
302.20	182.60	2.19	8.41	447.82	277.11	2.08	9.20
533.01	354.78	1.77	7.92	622.29	396.20	1.96	8.72
784.85	533.33	1.68	7.29	800.78	521.03	1.87	8.19
1144.97	790.15	1.61	6.49	1128.10	760.45	1.71	7.25

TABLE A-17: 741 FLAT PACK DATA FOR 5.6 GHz

S.N. 431				S.N. 433			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-5.01	0.00	0.00	0.00	-5.04
0.22	0.09	4.03	-5.02	0.23	0.09	4.26	-5.04
0.29	0.11	4.33	-5.02	0.31	0.11	4.42	-5.05
0.51	0.19	4.21	-5.03	0.53	0.19	4.39	-5.06
0.88	0.33	4.20	-5.05	0.92	0.34	4.37	-5.07
1.33	0.50	4.23	-5.08	1.38	0.51	4.33	-5.10
2.11	0.80	4.19	-5.13	2.18	0.81	4.28	-5.15
3.55	1.38	4.09	-5.25	3.60	1.32	4.35	-5.27
5.53	2.14	4.13	-5.46	5.60	2.07	4.31	-5.48
8.92	3.40	4.19	-5.91	9.06	3.35	4.32	-5.92
15.17	5.70	4.25	-6.10	15.32	5.54	4.42	-7.40
24.78	9.12	4.34	-8.75	24.92	8.81	4.51	-7.00
41.40	15.11	4.38	-8.99	41.68	14.70	4.53	-9.05
64.51	23.39	4.41	-9.02	64.78	22.72	4.55	-9.09
106.51	38.55	4.41	-9.00	106.78	37.38	4.56	-9.08
175.04	63.42	4.41	-8.97	175.03	61.02	4.58	-9.04
295.47	101.08	4.66	-8.88	305.45	93.06	5.16	-8.96
474.76	156.17	4.83	-8.64	505.14	168.31	4.77	-8.70
802.04	284.75	4.50	8.95	809.68	256.12	5.00	9.50
1232.20	465.64	4.23	8.40	1251.49	425.59	4.68	9.01

S.N. 432				S.N. 434			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-5.06	-0.00	-0.00	0.00	-4.93
0.22	0.07	4.84	-5.06	0.21	0.08	3.39	-4.94
0.29	0.09	5.10	-5.07	0.26	0.10	4.32	-4.94
0.51	0.16	5.02	-5.08	0.45	0.17	4.27	-4.95
0.88	0.27	5.14	-5.09	0.76	0.28	4.31	-4.96
1.34	0.43	4.98	-5.12	1.12	0.41	4.33	-4.98
2.11	0.67	4.99	-5.17	1.77	0.60	4.12	-5.02
3.59	1.17	4.87	-5.29	2.92	1.13	4.12	-5.12
5.52	1.75	4.99	-5.49	4.45	1.71	4.15	-5.28
9.01	2.87	4.96	-5.89	7.04	2.64	4.25	-5.60
15.24	4.73	5.09	-6.70	11.88	4.45	4.26	-6.00
24.85	7.51	5.20	-8.00	19.28	7.09	4.34	-7.80
41.64	12.56	5.21	-9.18	31.50	11.26	4.47	-8.80
64.62	19.17	5.28	-9.21	48.22	17.22	4.47	-8.88
106.51	31.52	5.29	-9.20	76.47	27.28	4.48	-8.88
174.99	52.00	5.27	-9.16	112.65	39.92	4.51	-8.86
311.98	85.00	5.65	-9.08	263.62	88.94	4.72	-8.76
499.04	133.25	5.73	-8.87	413.57	131.54	4.97	-8.56
831.85	230.71	5.57	9.59	677.19	223.41	4.82	8.32
1267.28	383.85	5.19	9.06	1051.51	389.16	4.32	7.86

TABLE A-17 (CONT'D)

S.N. 435				S.N. 437			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.99	0.00	0.00	0.00	-4.99
0.22	0.09	4.03	-5.00	0.21	0.08	4.40	-5.00
0.28	0.10	4.31	-5.00	0.28	0.10	4.43	-5.00
0.49	0.19	4.05	-5.01	0.47	0.16	4.77	-5.01
0.82	0.33	4.00	-5.02	0.80	0.28	4.57	-5.03
1.20	0.47	4.11	-5.05	1.20	0.41	4.65	-5.05
1.86	0.73	4.06	-5.09	1.87	0.66	4.52	-5.10
3.09	1.24	3.97	-5.18	3.14	1.12	4.47	-5.21
4.66	1.85	4.02	-5.34	4.81	1.73	4.44	-5.39
7.51	2.99	4.00	-5.66	7.67	2.70	4.54	-5.77
12.44	4.82	4.12	-6.31	12.70	4.50	4.50	-6.49
20.27	7.82	4.14	-7.24	21.65	7.58	4.56	-7.70
33.20	12.49	4.25	-8.00	33.94	11.20	4.82	-9.24
50.85	18.97	4.28	-9.38	52.16	17.21	4.81	-9.33
80.71	29.84	4.32	-9.39	82.60	26.88	4.88	-9.33
121.81	45.09	4.32	-9.38	125.36	41.02	4.85	-9.31
284.34	99.88	4.54	-9.32	284.39	95.07	4.76	-9.24
448.65	160.88	4.45	-9.13	429.18	126.21	5.32	-8.95
724.16	264.23	4.38	10.04	712.49	228.68	4.94	9.94
1090.45	405.38	4.30	9.95	1067.00	343.06	4.93	9.52

S.N. 436				S.N. 438			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.98	0.00	0.00	0.00	-5.01
0.21	0.08	4.45	-4.99	0.23	0.09	4.11	-5.01
0.29	0.10	4.53	-4.99	0.31	0.12	4.26	-5.02
0.48	0.17	4.60	-5.00	0.52	0.19	4.27	-5.02
0.83	0.30	4.44	-5.02	0.89	0.34	4.17	-5.04
1.24	0.45	4.43	-5.04	1.33	0.51	4.18	-5.06
1.91	0.68	4.47	-5.08	2.05	0.78	4.18	-5.10
3.13	1.12	4.48	-5.17	3.36	1.27	4.22	-5.19
4.85	1.77	4.37	-5.31	5.21	2.03	4.09	-5.36
7.71	2.76	4.46	-5.62	8.29	3.19	4.16	-5.67
12.91	4.57	4.51	-6.21	13.66	5.08	4.30	-6.30
20.92	7.32	4.56	-6.80	22.15	8.24	4.30	-6.80
34.24	11.66	4.68	-9.12	36.27	13.24	4.38	-9.10
52.28	17.57	4.74	-9.24	55.24	19.85	4.44	-9.33
83.05	27.84	4.75	-9.27	88.64	31.90	4.44	-9.36
125.73	42.14	4.75	-9.25	136.85	49.17	4.45	-9.34
294.91	99.25	4.73	-9.17	308.04	107.48	4.57	-9.25
447.25	142.12	4.98	-9.00	480.12	168.59	4.55	-8.70
760.72	240.35	5.00	9.36	813.51	296.72	4.38	9.58
1101.72	342.09	5.08	8.91	1176.48	420.82	4.46	9.02

TABLE A-17 (CONT'D)

S.N. 439				S.N. 430			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
0.00	0.00	0.00	-4.98	-0.00	-0.00	0.00	-4.99
0.23	0.08	4.34	-4.99	0.20	0.09	3.62	-5.00
0.29	0.10	4.61	-4.99	0.26	0.10	4.06	-5.00
0.51	0.18	4.54	-5.00	0.47	0.18	4.09	-5.01
0.87	0.31	4.44	-5.02	0.79	0.31	4.10	-5.03
1.30	0.46	4.49	-5.04	1.22	0.48	4.05	-5.05
2.01	0.71	4.49	-5.09	1.88	0.74	4.05	-5.11
3.31	1.18	4.47	-5.19	3.16	1.25	4.02	-5.23
5.12	1.84	4.45	-5.37	4.88	1.92	4.06	-5.44
8.12	2.83	4.57	-5.77	7.87	3.08	4.07	-5.88
13.61	4.73	4.59	-6.50	13.28	5.12	4.14	-6.68
22.06	7.53	4.67	-7.80	21.75	8.25	4.21	-7.00
36.11	12.09	4.75	-9.19	35.74	13.28	4.30	-8.70
55.11	18.14	4.83	-9.28	54.94	20.25	4.33	-8.73
88.30	28.98	4.84	-9.28	88.26	32.46	4.34	-8.70
136.31	44.54	4.86	-9.26	136.50	49.98	4.36	-8.67
299.73	91.89	5.13	-9.19	279.31	98.66	4.52	-8.58
474.90	143.46	5.20	-9.00	436.74	149.34	4.66	-8.29
799.18	266.25	4.77	9.91	742.32	271.87	4.36	9.19
1196.47	410.25	4.65	9.67	1113.05	411.08	4.33	8.66

TABLE A-18: 741 FLAT PACK DATA FOR 9.1 GHz

S.N. 531				S.N. 533			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-5.02	-0.00	-0.00	0.00	-4.98
2.19	0.02	20.66	-5.02	2.37	0.02	21.07	-4.98
2.36	0.04	17.19	-5.02	2.53	0.04	17.73	-4.98
2.51	0.07	15.75	-5.02	2.79	0.08	15.23	-4.99
2.87	0.13	13.52	-5.02	3.17	0.15	13.31	-4.99
3.41	0.22	11.82	-5.02	3.71	0.25	11.75	-4.99
4.24	0.39	10.38	-5.02	4.56	0.41	10.46	-4.99
5.78	0.72	9.03	-5.02	6.16	0.75	9.14	-4.99
8.54	1.38	7.93	-5.02	8.99	1.41	8.05	-4.99
13.35	2.58	7.13	-5.02	13.85	2.63	7.21	-5.00
20.92	4.63	6.55	-5.02	21.35	4.62	6.64	-5.00
33.67	8.29	6.09	-5.02	33.45	7.99	6.22	-5.00
62.25	16.75	5.70	-5.03	61.71	16.21	5.81	-5.02
113.06	32.22	5.45	-5.06	113.76	31.89	5.52	-5.05
193.07	57.00	5.30	-5.12	192.67	56.01	5.37	-5.11
333.33	100.41	5.21	-5.28	332.33	98.57	5.23	-5.25
560.53	167.74	5.24	-5.63	560.69	167.40	5.25	-5.56
826.60	260.08	5.02	-6.43	832.00	254.23	5.15	-6.37
1236.44	386.35	5.05	-7.05	1244.89	371.15	5.26	-6.92
1729.42	534.62	5.10	-7.59	1747.18	522.87	5.24	-7.44

S.N. 532				S.N. 534			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.99	-0.00	-0.00	0.00	-4.97
2.36	0.02	21.10	-4.99	2.56	0.01	23.36	-4.97
2.53	0.04	17.57	-4.98	2.74	0.04	18.45	-4.97
2.77	0.08	15.31	-4.98	2.90	0.06	16.76	-4.97
3.16	0.14	13.43	-4.98	3.14	0.11	14.75	-4.97
3.71	0.25	11.66	-4.98	3.73	0.20	12.64	-4.97
4.54	0.41	10.43	-4.98	4.53	0.35	11.10	-4.97
6.14	0.74	9.16	-4.98	6.16	0.68	9.55	-4.97
9.00	1.41	8.04	-4.98	9.05	1.32	8.35	-4.97
13.76	2.58	7.26	-4.99	13.84	2.48	7.47	-4.97
21.30	4.59	6.66	-4.99	21.33	4.41	6.84	-4.97
33.50	8.00	6.22	-4.98	33.66	7.76	6.38	-4.98
61.71	16.16	5.82	-4.99	61.77	15.76	5.93	-4.99
111.98	31.31	5.53	-4.99	114.07	30.99	5.66	-5.02
191.99	55.65	5.38	-5.01	191.11	53.90	5.50	-5.07
333.45	98.50	5.30	-5.05	335.46	96.63	5.41	-5.22
560.69	166.61	5.27	-5.12	563.09	163.55	5.37	-5.53
824.68	252.85	5.13	-5.31	832.38	245.24	5.31	-6.31
1233.40	373.99	5.18	-5.54	1243.71	361.75	5.36	-6.73
1752.74	526.47	5.22	-5.89	1754.41	510.69	5.36	-7.14

TABLE A-18 (CONT'D)

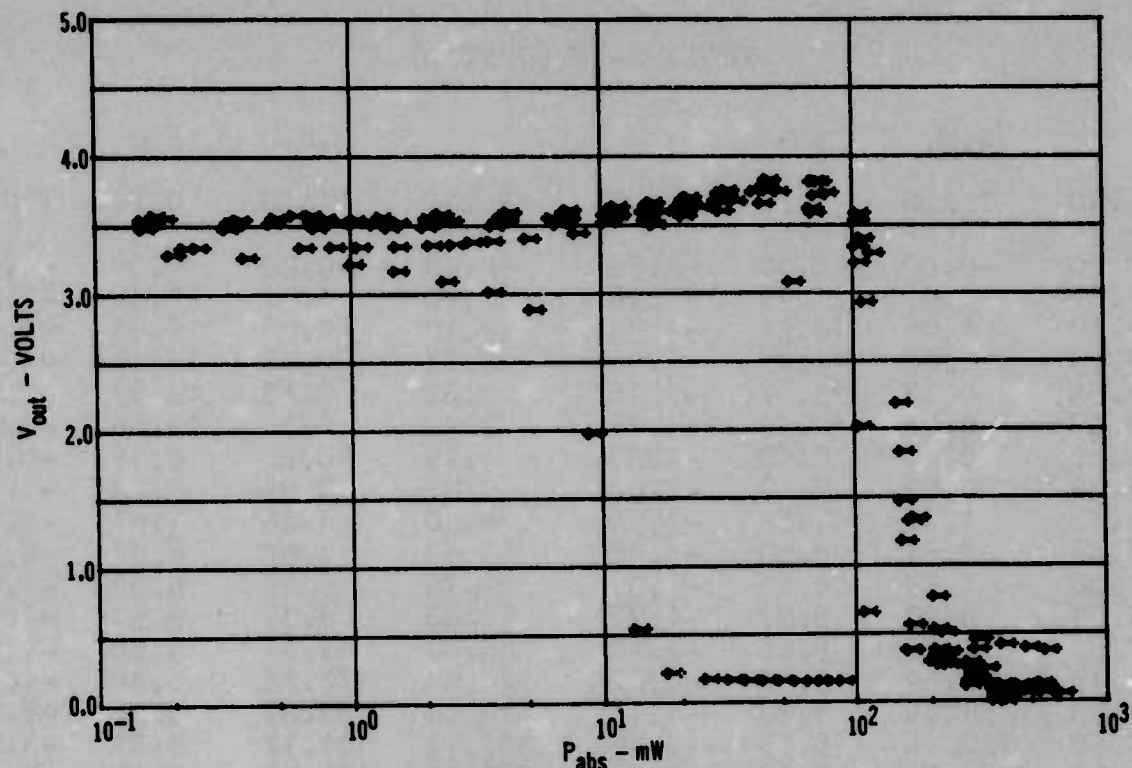
S.N. 535				S.N. 537			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.99	-0.00	-0.00	0.00	-4.95
2.74	0.02	20.60	-4.99	2.37	0.02	20.17	-4.95
2.90	0.05	17.72	-4.99	2.54	0.05	17.33	-4.95
3.09	0.08	15.99	-4.99	2.79	0.09	14.97	-4.95
3.35	0.12	14.43	-4.99	3.13	0.15	13.29	-4.95
3.74	0.19	12.93	-4.99	3.76	0.26	11.56	-4.95
4.58	0.34	11.31	-4.99	4.56	0.42	10.38	-4.95
6.15	0.65	9.77	-4.99	6.18	0.76	9.07	-4.95
8.99	1.27	8.51	-4.99	9.04	1.42	8.03	-4.96
13.86	2.41	7.59	-4.99	13.91	2.64	7.21	-4.96
21.44	4.35	6.93	-5.00	21.35	4.63	6.64	-4.96
33.51	7.59	6.45	-5.00	33.53	8.03	6.21	-4.96
61.65	15.49	6.00	-5.00	61.17	16.06	5.81	-4.97
113.91	30.57	5.71	-5.02	113.14	31.59	5.54	-5.00
193.85	54.20	5.53	-5.06	192.77	55.62	5.40	-5.06
329.32	93.84	5.45	-5.14	336.60	99.25	5.30	-5.21
561.65	161.09	5.42	-5.34	562.45	166.75	5.28	-5.53
832.19	244.20	5.32	-6.02	834.51	256.89	5.12	-6.21
1245.60	361.91	5.37	-6.42	1227.56	369.38	5.22	-6.68
1763.63	518.99	5.31	-6.79	1754.42	528.02	5.21	-7.16

S.N. 536				S.N. 538			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.98	-0.00	-0.00	0.00	-4.94
2.82	0.01	23.53	-4.98	2.45	0.01	22.96	-4.94
3.00	0.04	18.87	-4.98	2.64	0.04	18.28	-4.94
3.18	0.07	16.67	-4.98	2.86	0.07	15.82	-4.94
3.47	0.11	14.99	-4.98	3.21	0.13	13.78	-4.94
4.04	0.21	12.86	-4.98	3.49	0.18	12.81	-4.94
4.90	0.37	11.25	-4.98	4.27	0.33	11.14	-4.94
6.54	0.69	9.76	-4.98	5.83	0.65	9.55	-4.95
9.43	1.31	8.56	-4.98	8.50	1.24	8.35	-4.95
14.34	2.44	7.68	-4.98	14.33	2.68	7.29	-4.95
22.11	4.43	6.99	-4.98	20.25	4.22	6.82	-4.95
35.20	7.88	6.50	-4.98	33.65	7.94	6.27	-4.95
61.83	15.29	6.07	-4.99	62.85	16.27	5.37	-4.97
113.37	30.07	5.76	-5.00	113.83	31.32	5.50	-5.00
192.87	53.24	5.59	-5.03	200.08	57.37	5.42	-5.08
333.33	93.74	5.51	-5.09	331.70	96.88	5.35	-5.25
563.09	158.36	5.51	-5.24	560.85	165.26	5.31	-5.62
836.64	237.26	5.47	-5.80	836.25	245.87	5.32	-6.04
1235.74	349.25	5.49	-6.18	1247.71	372.39	5.25	-6.89
1748.29	496.27	5.47	-6.60	1731.63	514.88	5.27	-7.31

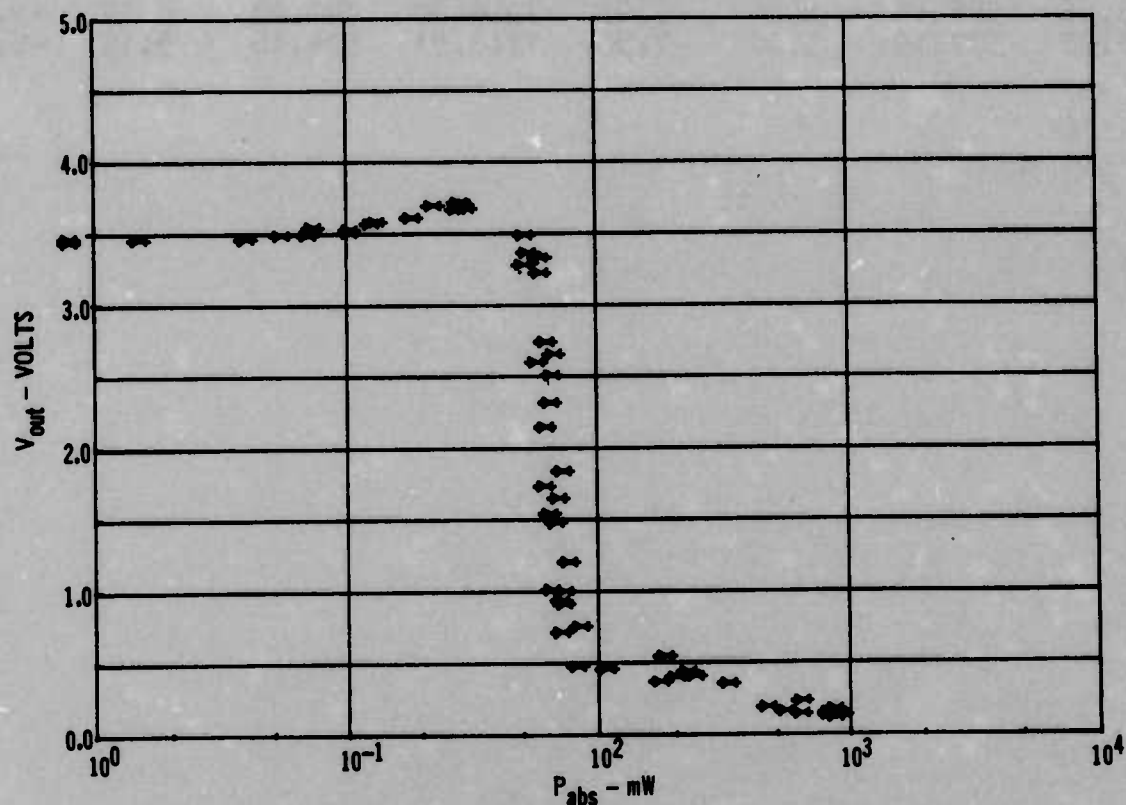
TABLE A-18 (CONT'D)

S.N. 539				S.N. 530			
P INC	P ABS	C.F.	V OUT	P INC	P ABS	C.F.	V OUT
-0.00	-0.00	0.00	-4.96	-0.00	-0.00	0.00	-4.95
1.86	0.01	21.75	-4.96	1.90	0.01	22.46	-4.95
2.10	0.05	16.21	-4.96	2.10	0.04	16.83	-4.95
2.29	0.08	14.45	-4.96	2.33	0.08	14.49	-4.95
2.54	0.13	13.07	-4.96	2.61	0.13	12.92	-4.95
3.23	0.26	10.98	-4.96	3.45	0.30	10.66	-4.95
4.10	0.44	9.68	-4.96	4.29	0.48	9.56	-4.95
5.78	0.82	8.48	-4.96	5.87	0.83	8.48	-4.95
8.42	1.47	7.58	-4.96	8.40	1.46	7.61	-4.95
13.46	2.81	6.80	-4.96	13.63	2.83	6.82	-4.95
21.06	4.95	6.29	-4.97	21.18	4.97	6.30	-4.96
35.09	9.09	5.87	-4.97	32.83	8.37	5.94	-4.96
61.89	17.22	5.56	-4.99	63.39	17.61	5.56	-4.97
111.13	32.59	5.33	-5.02	114.84	33.42	5.36	-4.98
198.78	59.99	5.20	-5.11	199.18	59.87	5.22	-5.02
327.58	100.16	5.15	-5.28	334.71	101.77	5.17	-5.10
568.87	174.70	5.13	-5.70	577.76	176.70	5.15	-5.32
785.89	240.65	5.14	-6.07	831.42	253.04	5.17	-5.59
1238.08	386.65	5.05	-7.03	1246.30	382.49	5.13	-6.46
1730.25	537.19	5.08	-7.50	1740.51	526.46	5.19	-6.85

INTEGRATED CIRCUIT SUSCEPTIBILITY



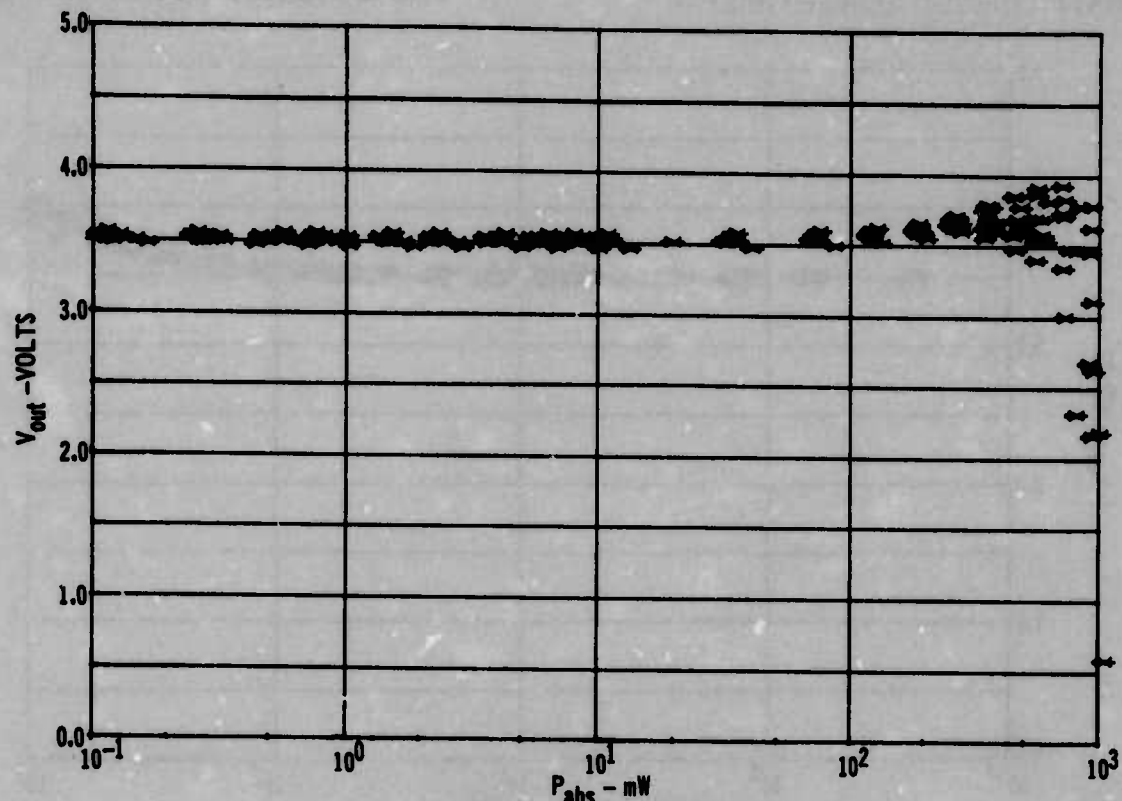
(a) Chip No. 1 in Flat Pack



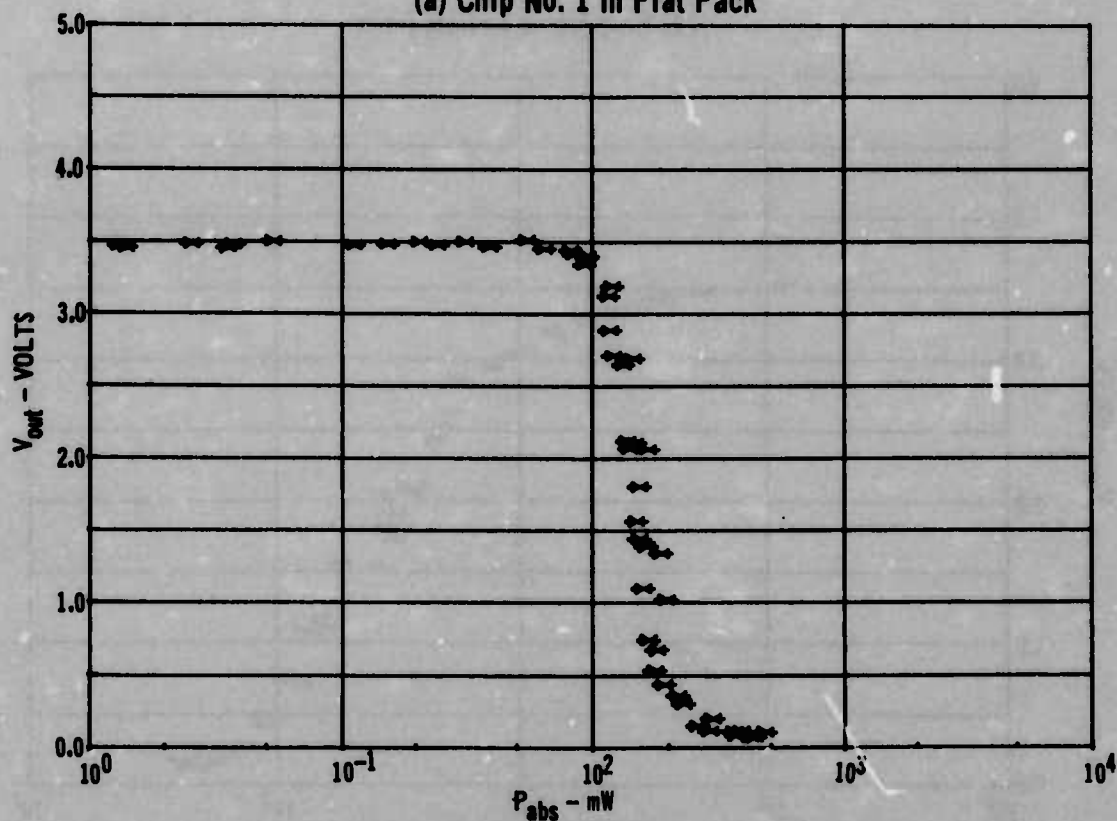
(b) Chip No. 2 in Dip

FIGURE A-1 7400 FLAT PACK VS 7400 DIP SUSCEPTIBILITY AT 220 MHz

INTEGRATED CIRCUIT SUSCEPTIBILITY

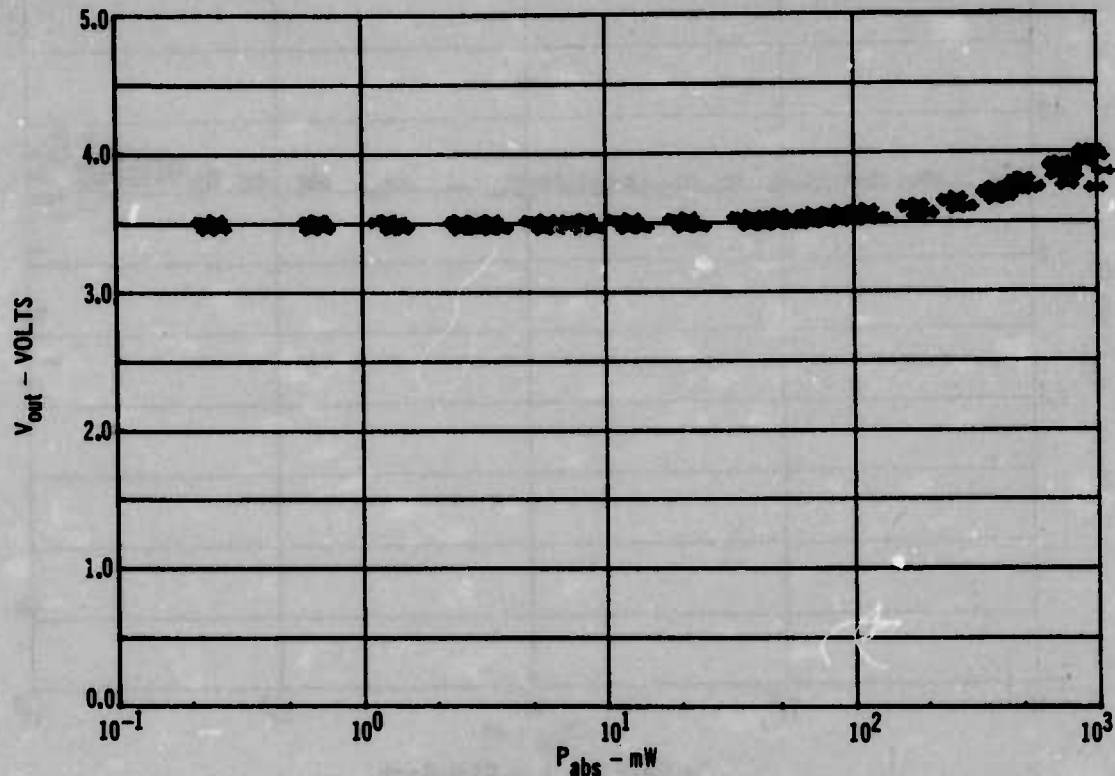


(a) Chip No. 1 in Flat Pack

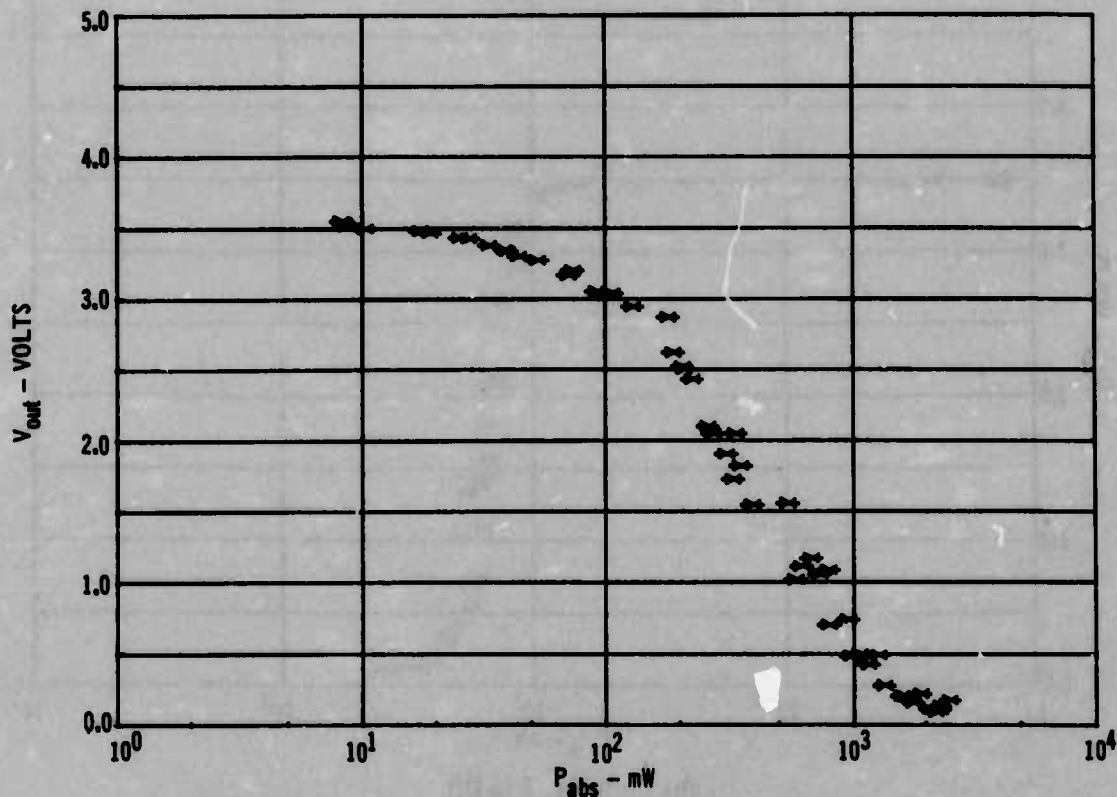


(b) Chip No. 2 in Dip

FIGURE A-2 7400 FLAT PACK VS 7400 DIP SUSCEPTIBILITY AT 910 MHz

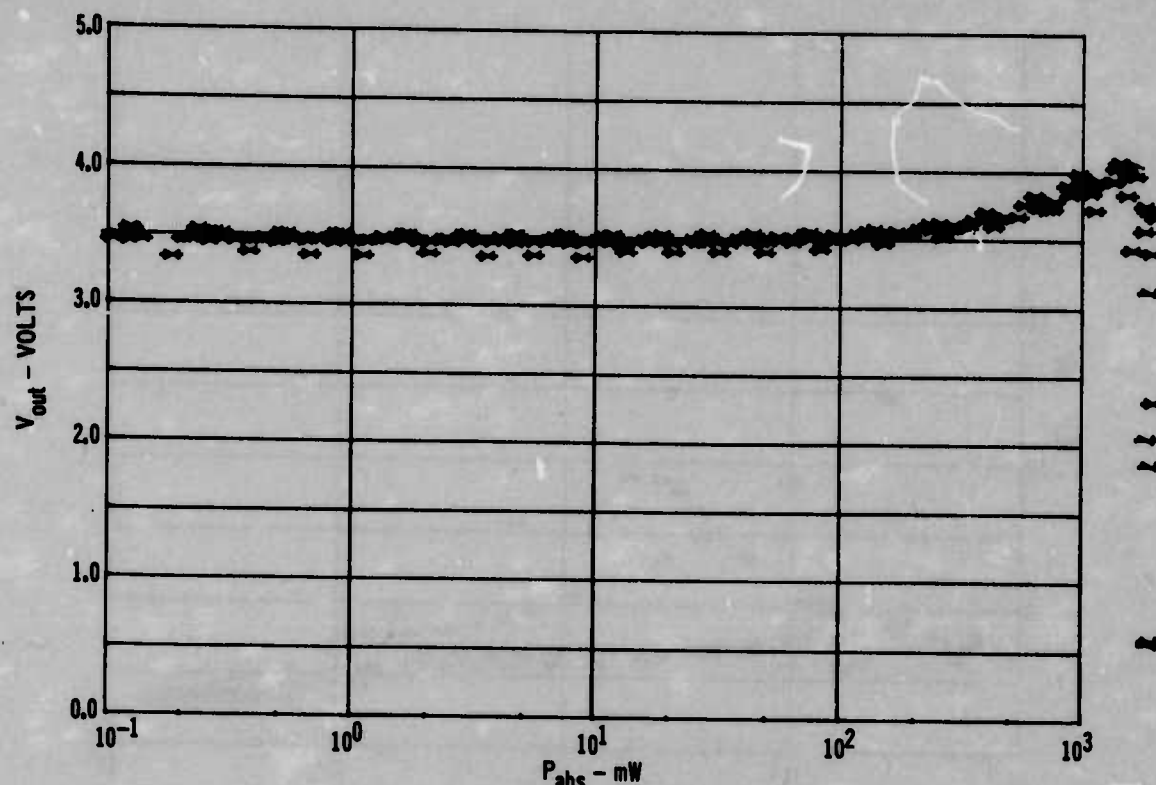


(a) Chip No. 1 in Flat Pack

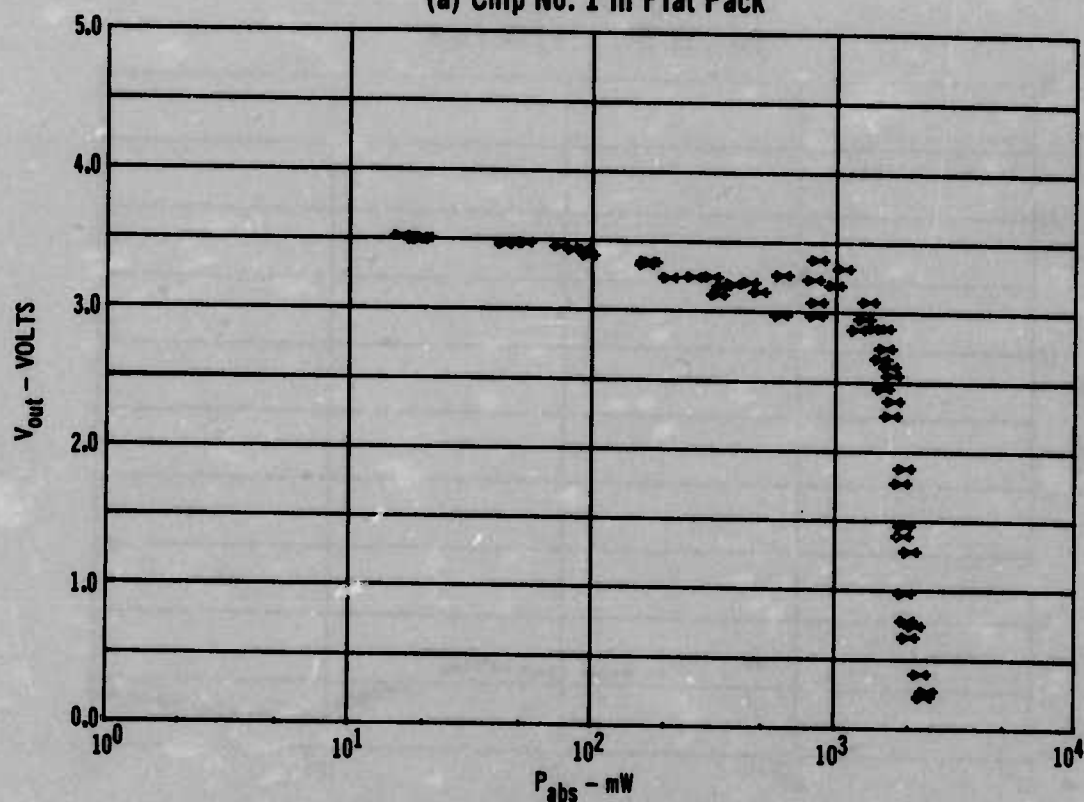


(b) Chip No. 2 in Dip

FIGURE A-3 7400 FLAT PACK VS 7400 DIP SUSCEPTIBILITY AT 3.0 GHz



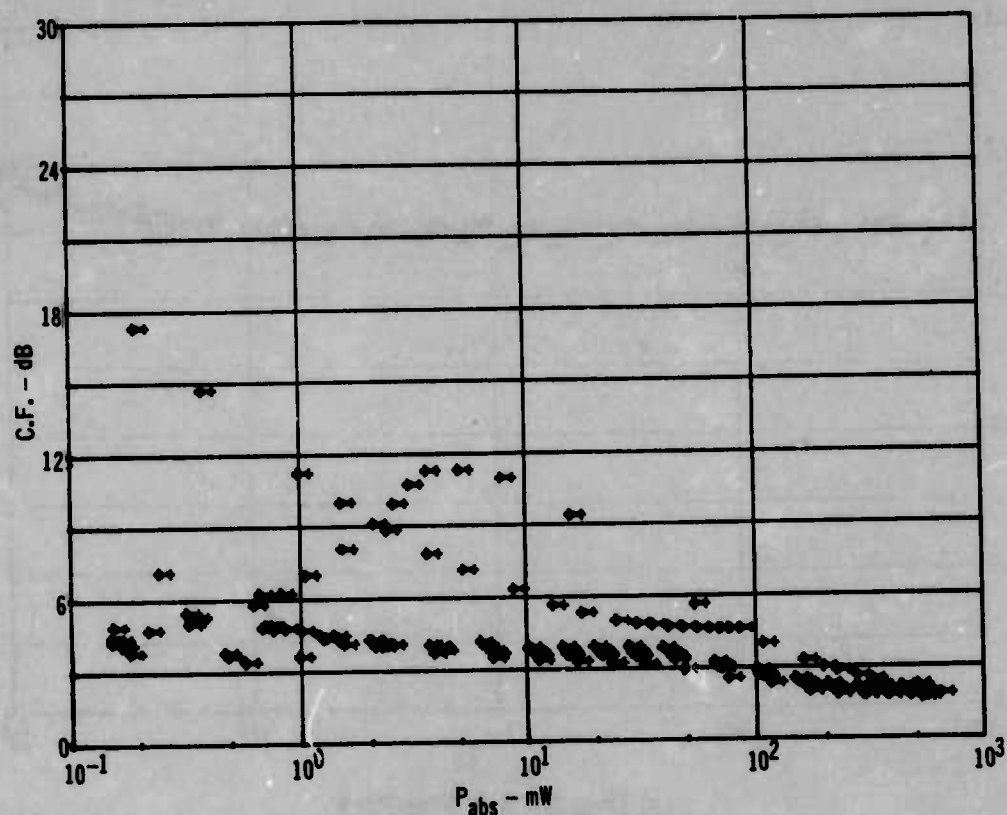
(a) Chip No. 1 in Flat Pack



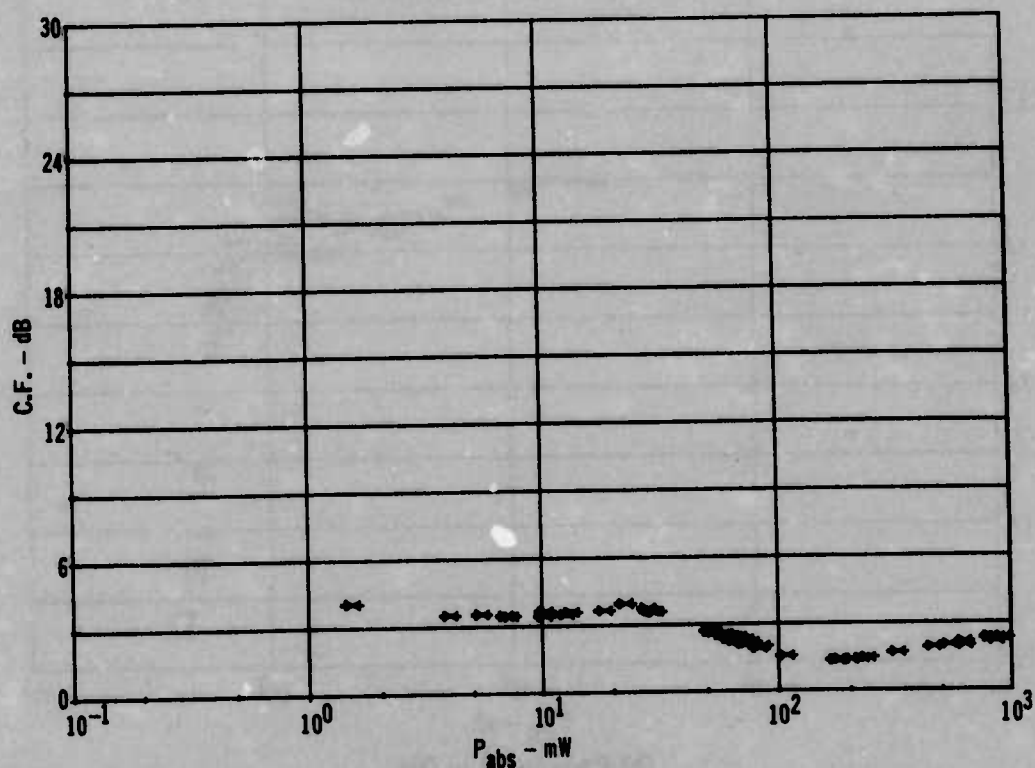
(b) Chip No. 2 in Dip

FIGURE A-4 7400 FLAT PACK VS 7400 DIP SUSCEPTIBILITY AT 5.6 GHz

INTEGRATED CIRCUIT SUSCEPTIBILITY

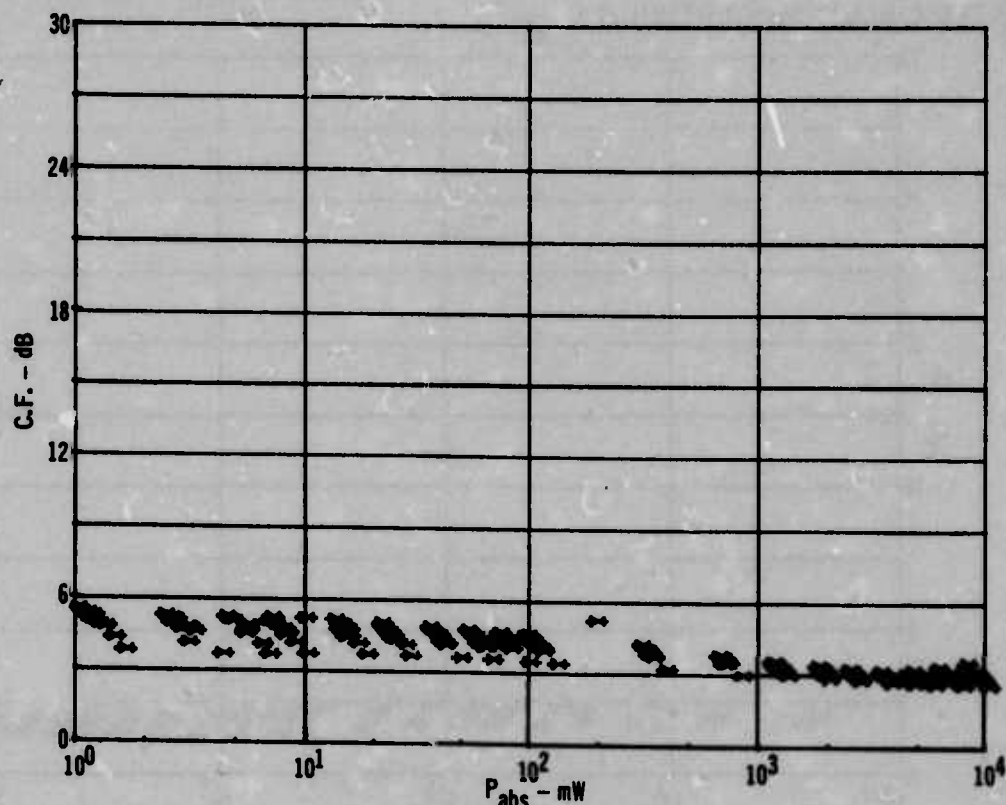


(a) Chip No. 1 in Flat Pack

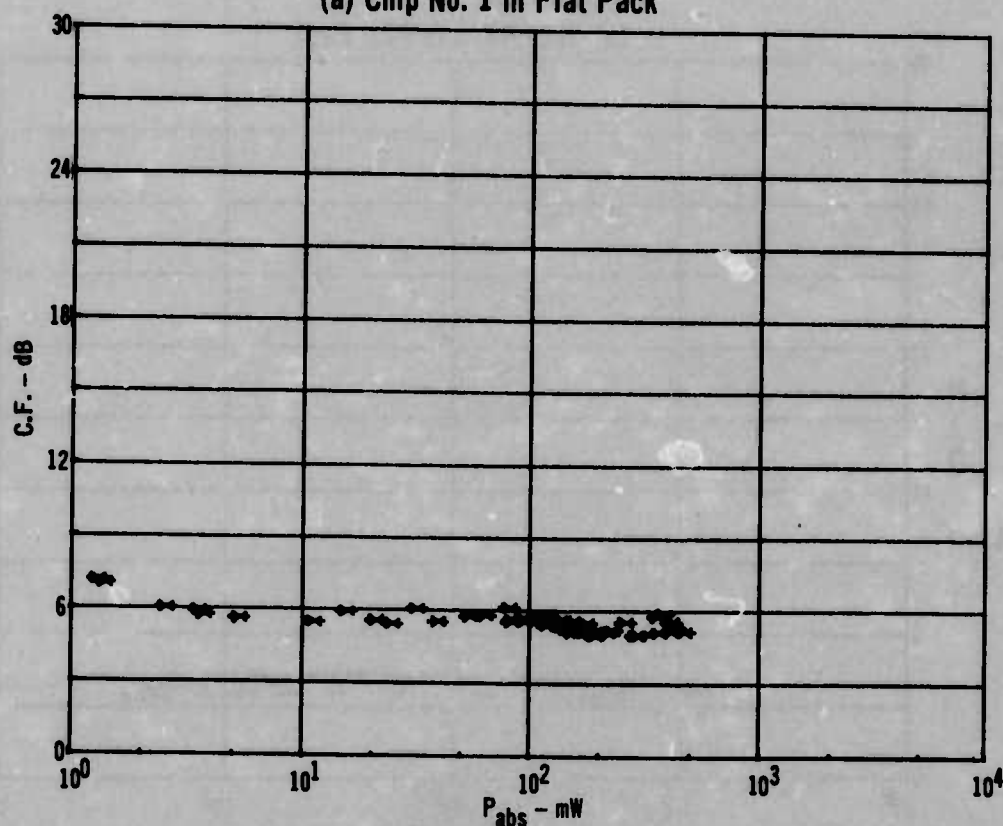


(b) Chip No. 2 in Dip

FIGURE A-5 7400 FLAT PACK VS 7400 DIP CALIBRATION FACTOR AT 220 MHz



(a) Chip No. 1 in Flat Pack

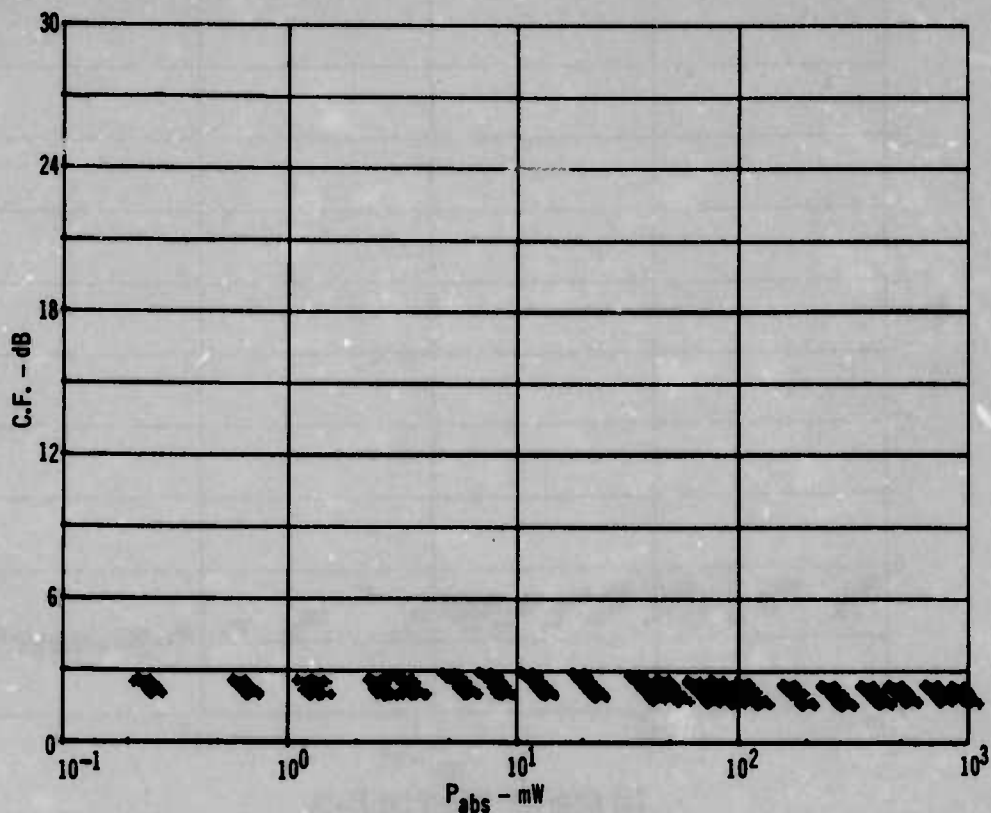


(b) Chip No. 2 in Dip

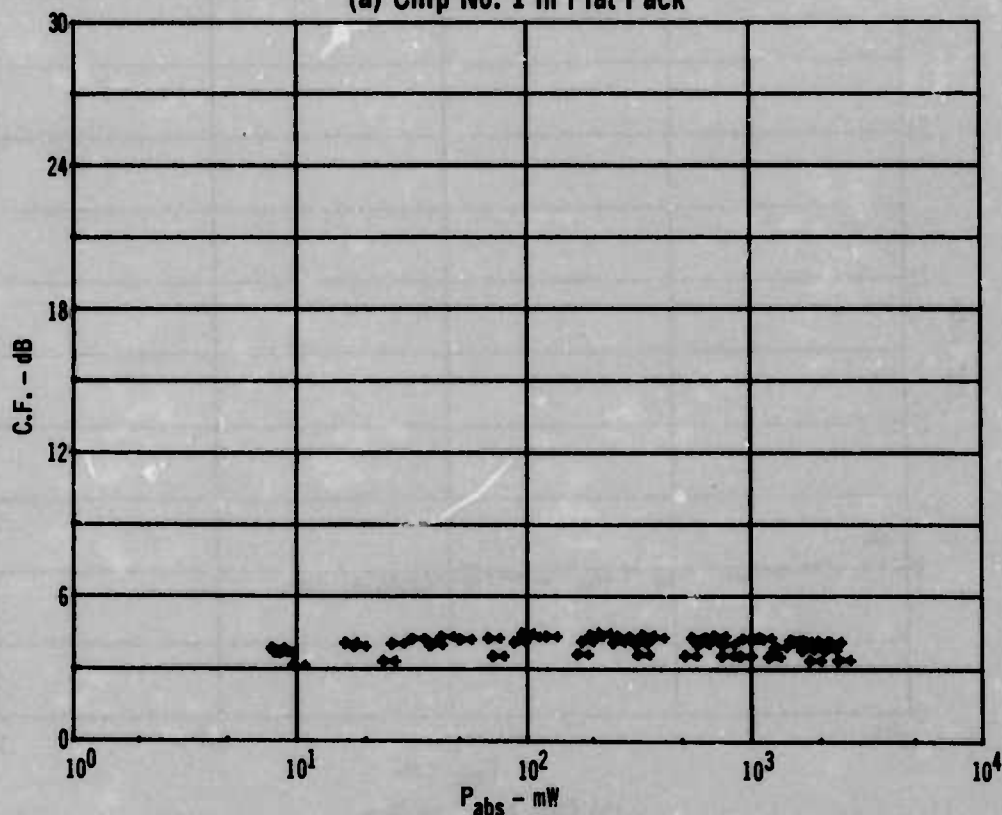
FIGURE A-6 7400 FLAT PACK VS 7400 DIP CALIBRATION FACTOR AT 910 MHz

INTEGRATED CIRCUIT SUSCEPTIBILITY

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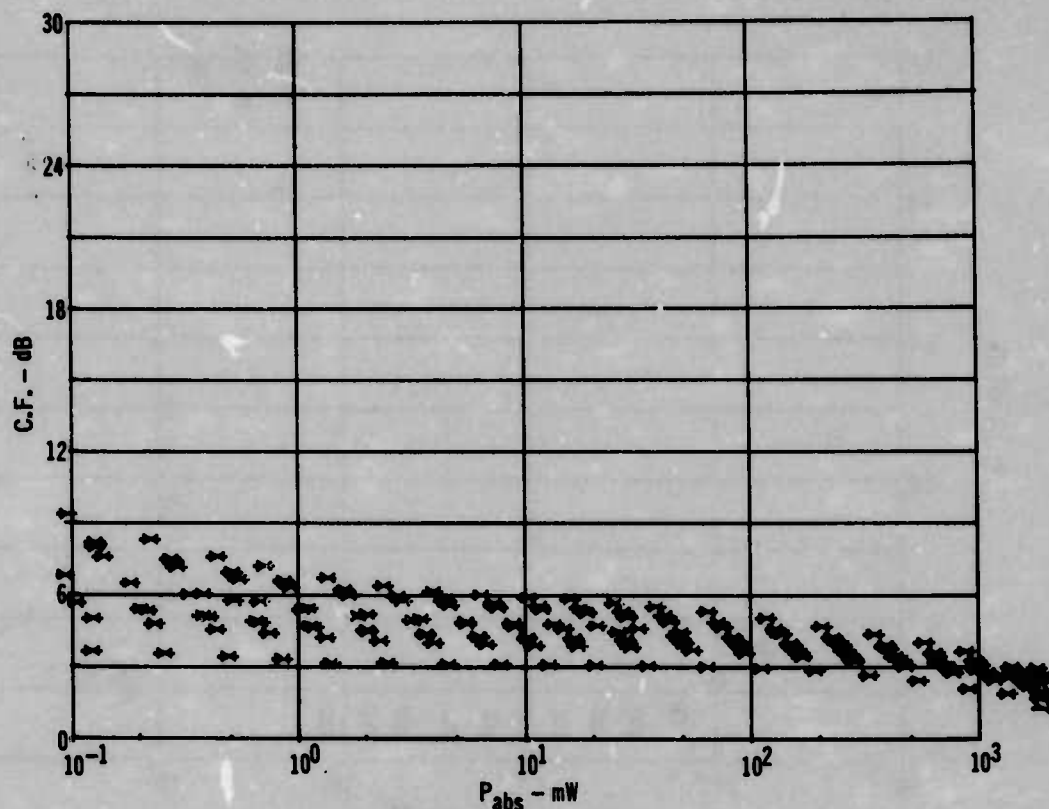


(a) Chip No. 1 In Flat Pack

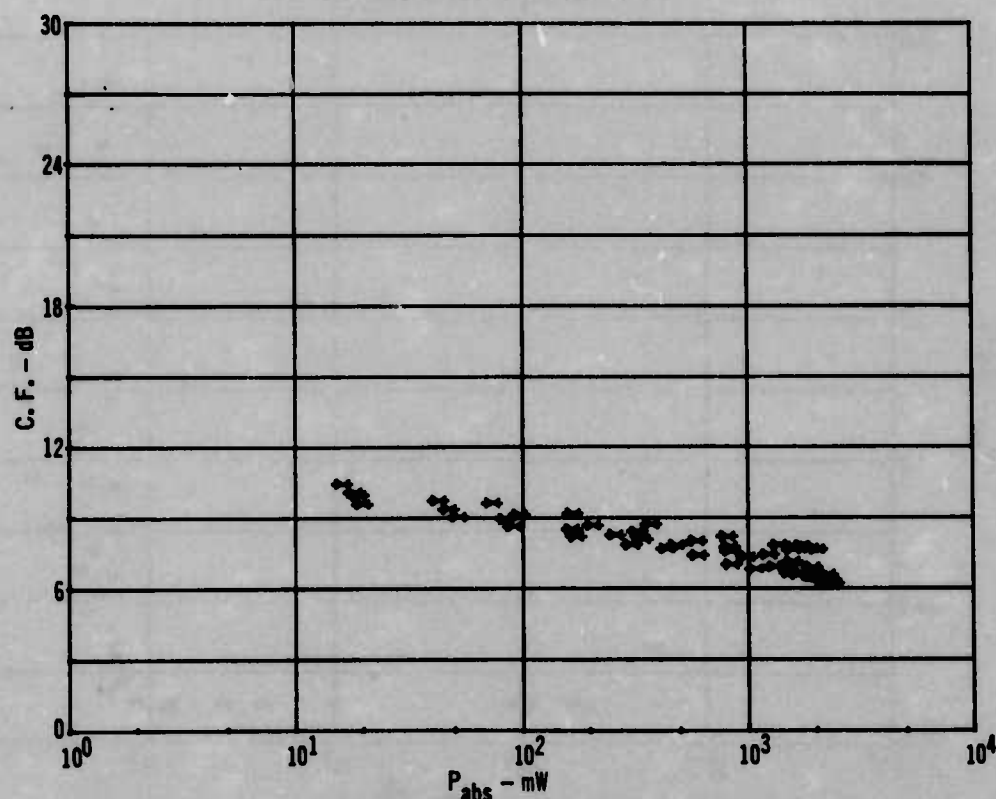


(b) Chip No. 2 in Dip

FIGURE A-7 7400 FLAT PACK VS 7400 DIP CALIBRATION FACTOR AT 3.0 GHz



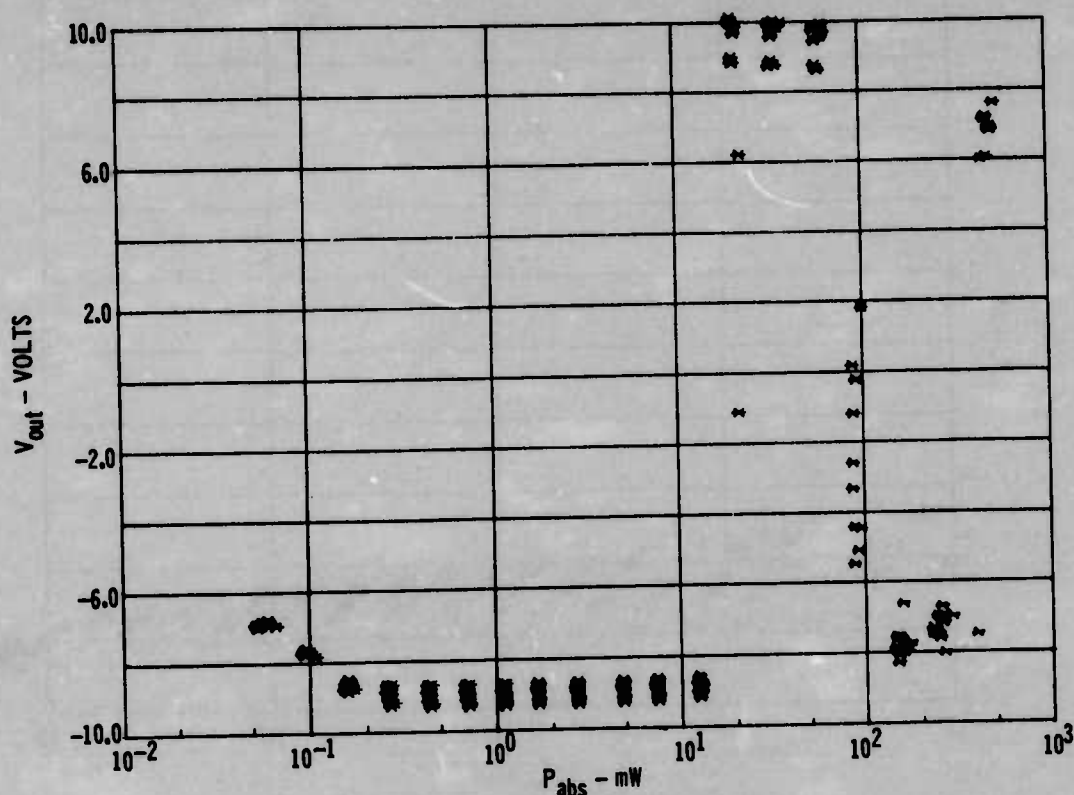
(a) Chip No. 1 in Flat Pack



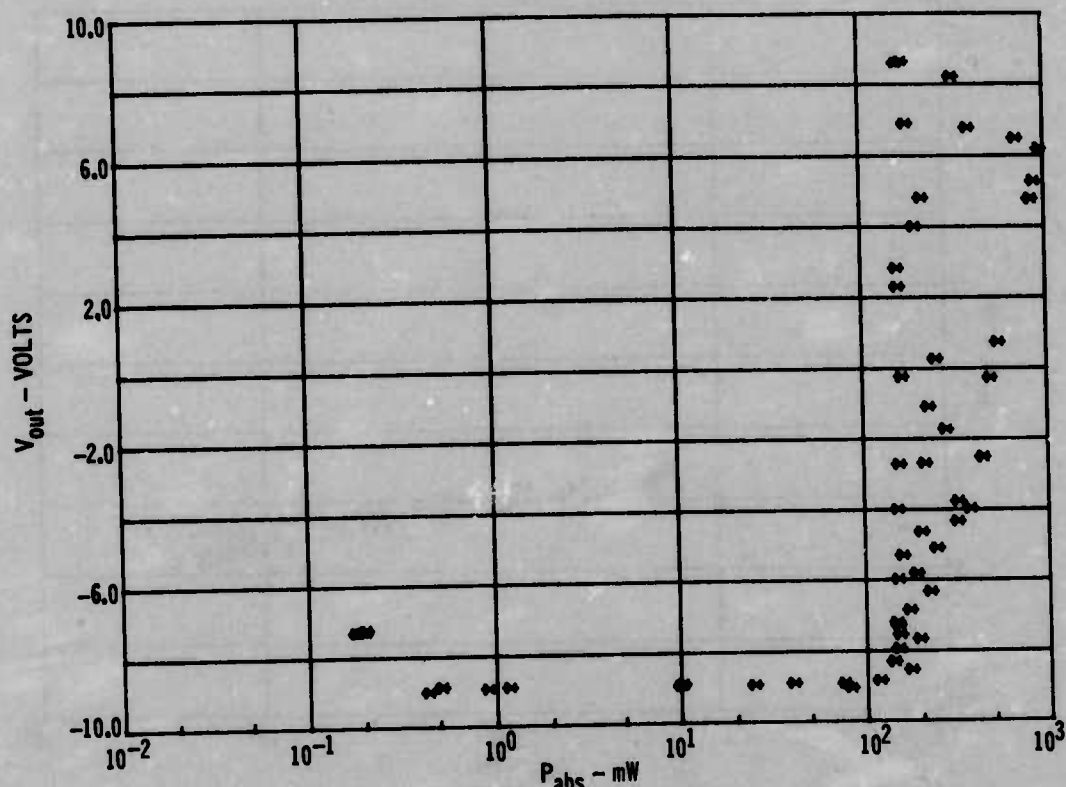
(b) Chip No. 2 in Dip

FIGURE A-8 7400 FLAT PACK VS 7400 DIP CALIBRATION FACTOR AT 5.6 GHz

INTEGRATED CIRCUIT SUSCEPTIBILITY

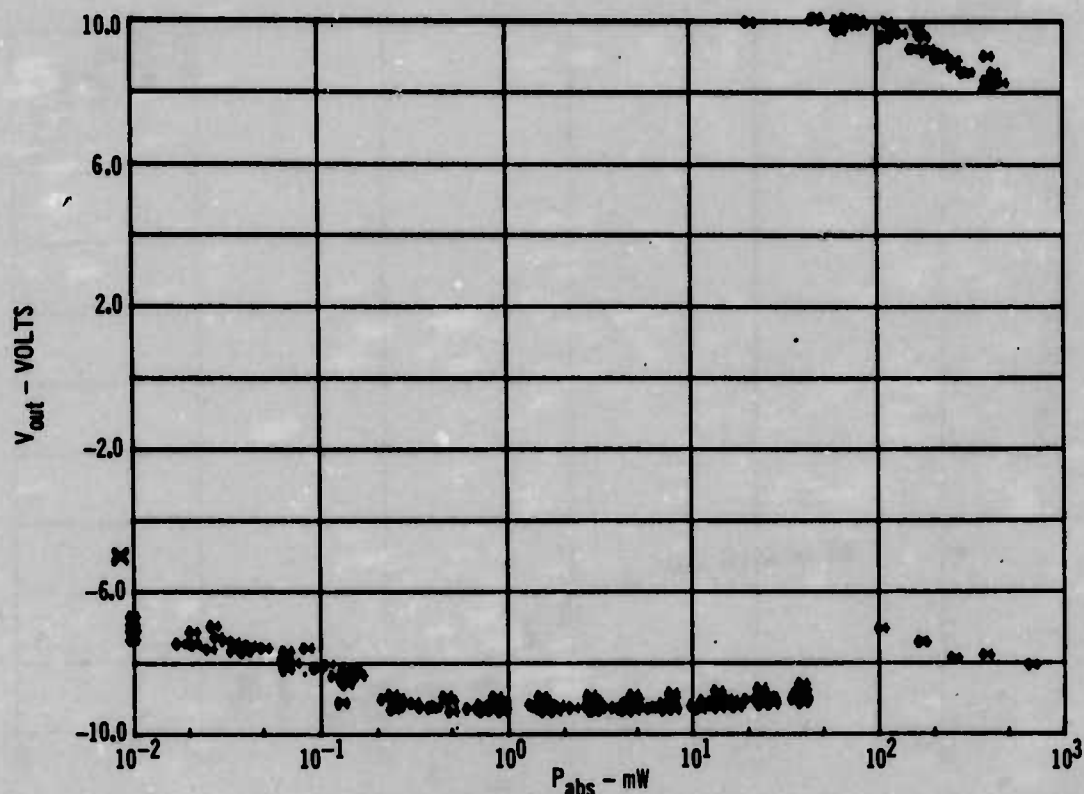


(a) Chip No. 3 in Flat Pack

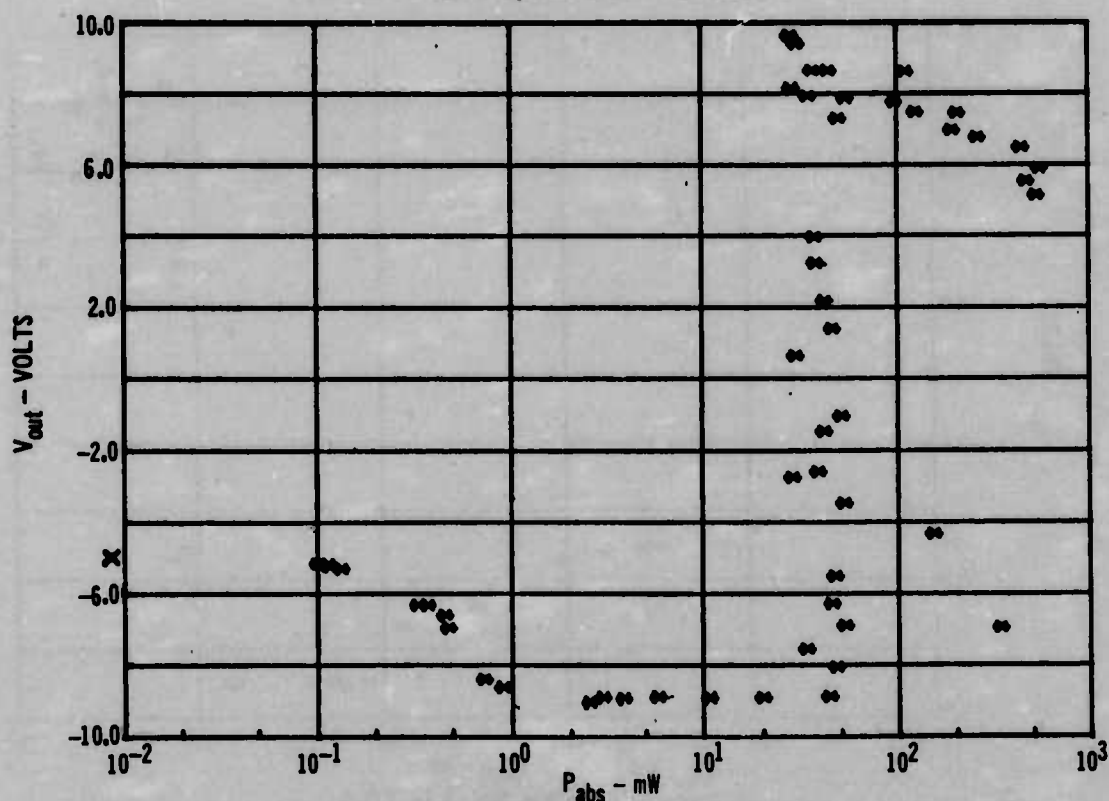


(b) Chip No. 4 in TO-5

FIGURE A-9 741 FLAT PACK VS 741 TO-5 SUSCEPTIBILITY AT 220 MHz

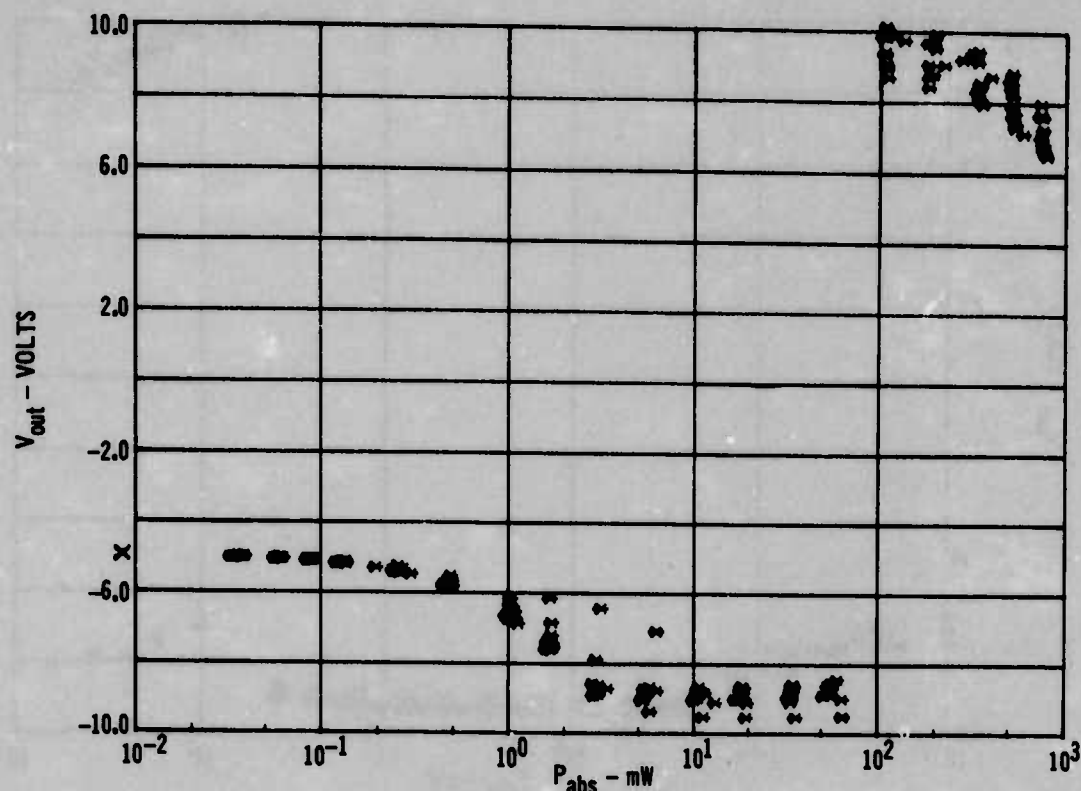


(a) Chip No. 3 in Flat Pack

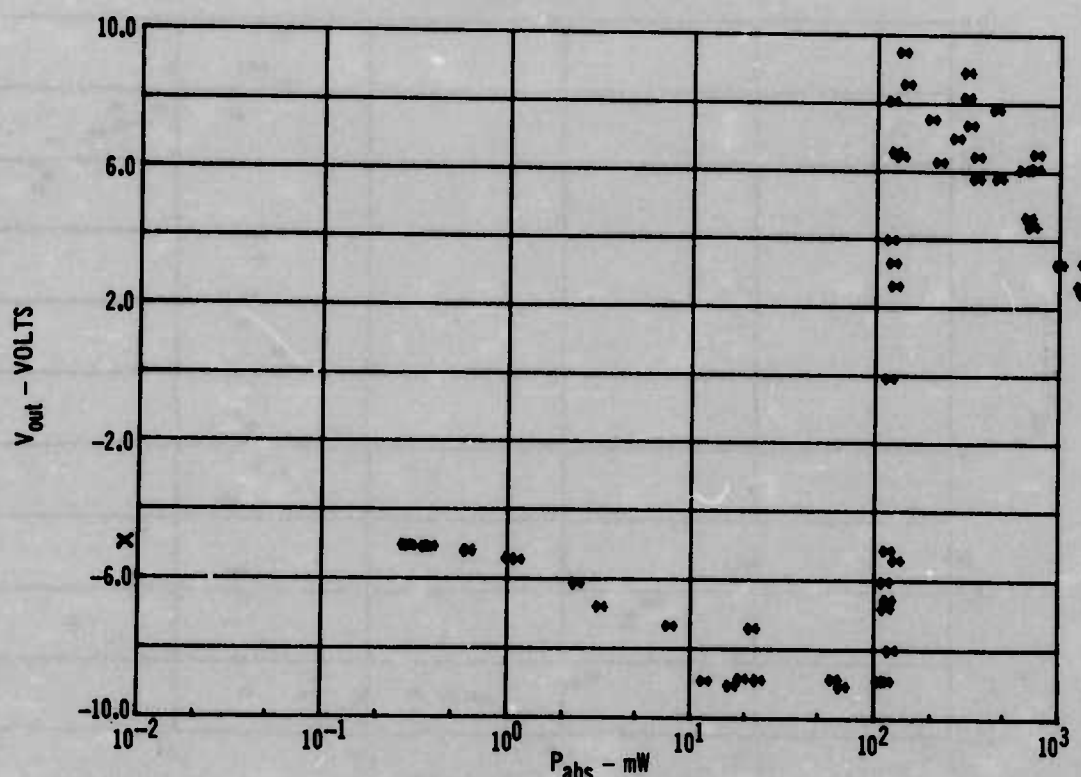


(b) Chip No. 4 in TO-5

FIGURE A-10 741 FLAT PACK VS 741 TO-5 SUSCEPTIBILITY AT 910 MHz

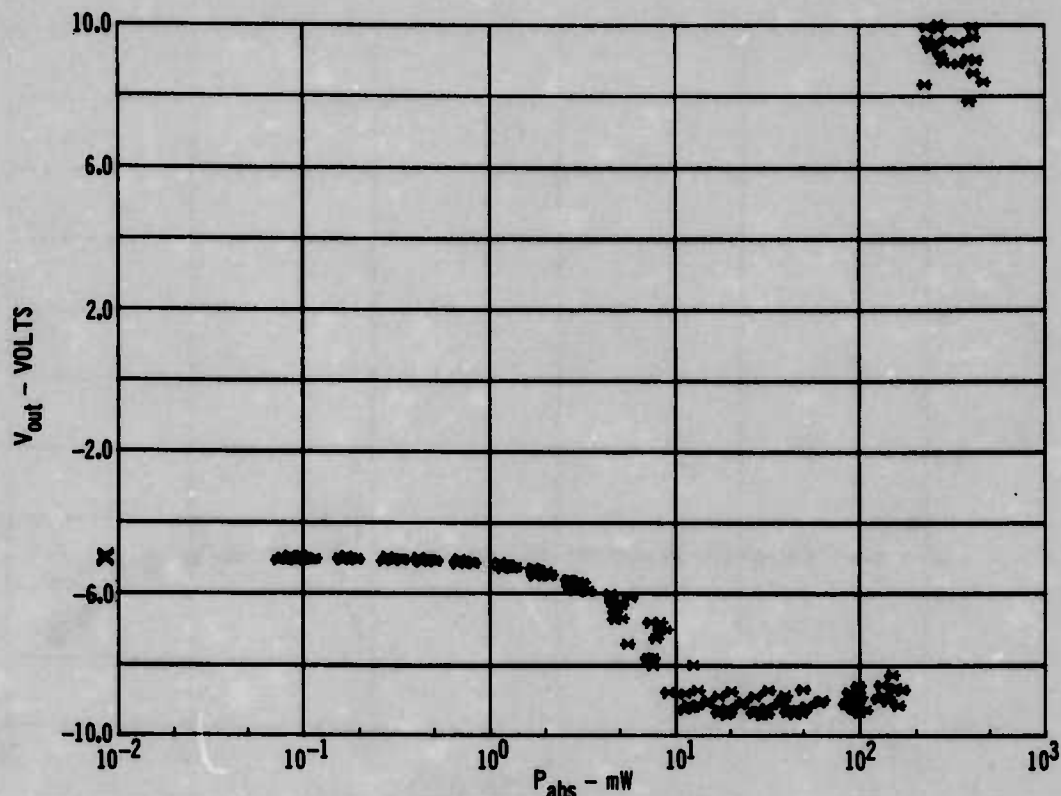


(a) Chip No. 3 in Flat Pack

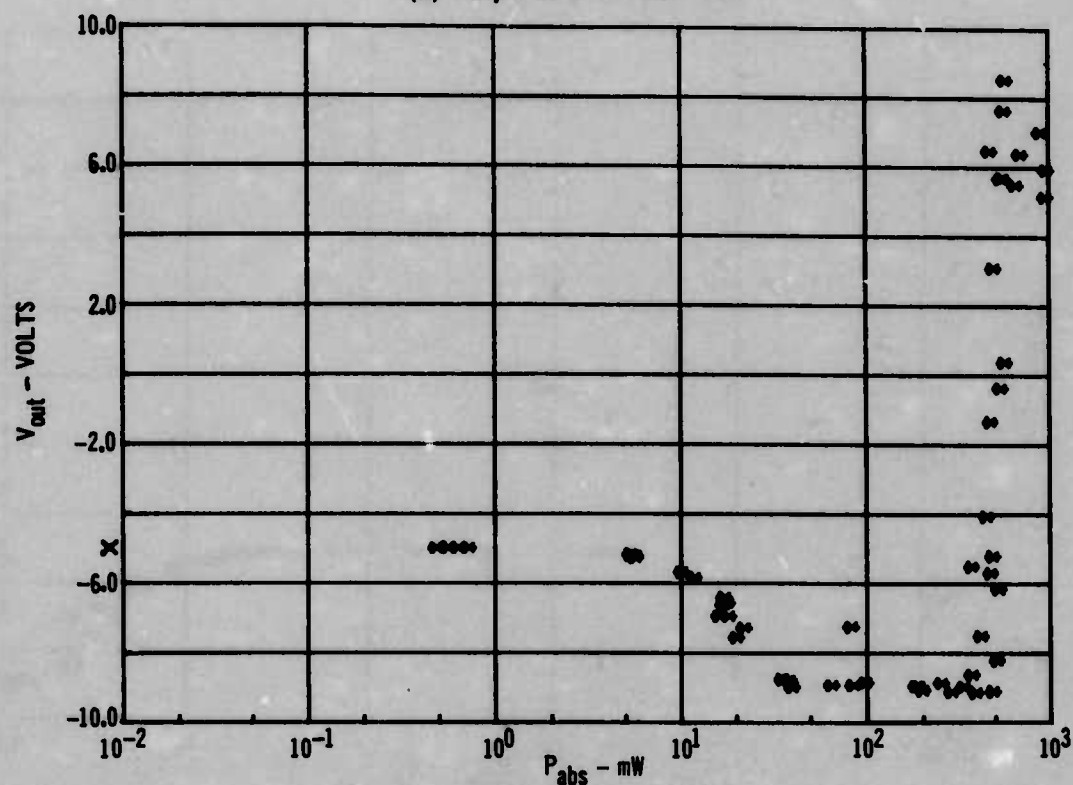


(b) Chip No. 4 in TO-5

FIGURE A-11 741 FLAT PACK VS 741 TO-5 SUSCEPTIBILITY AT 3.0 GHz



(a) Chip No. 3 in Flat Pack

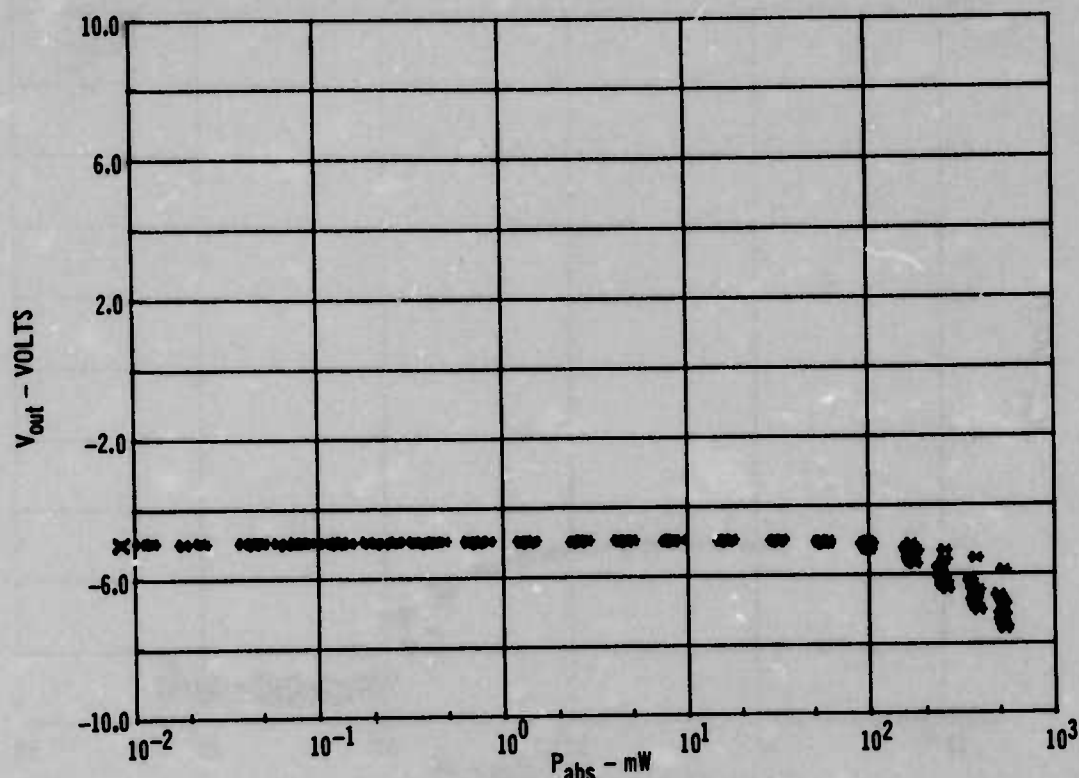


(b) Chip No. 4 in TO-5

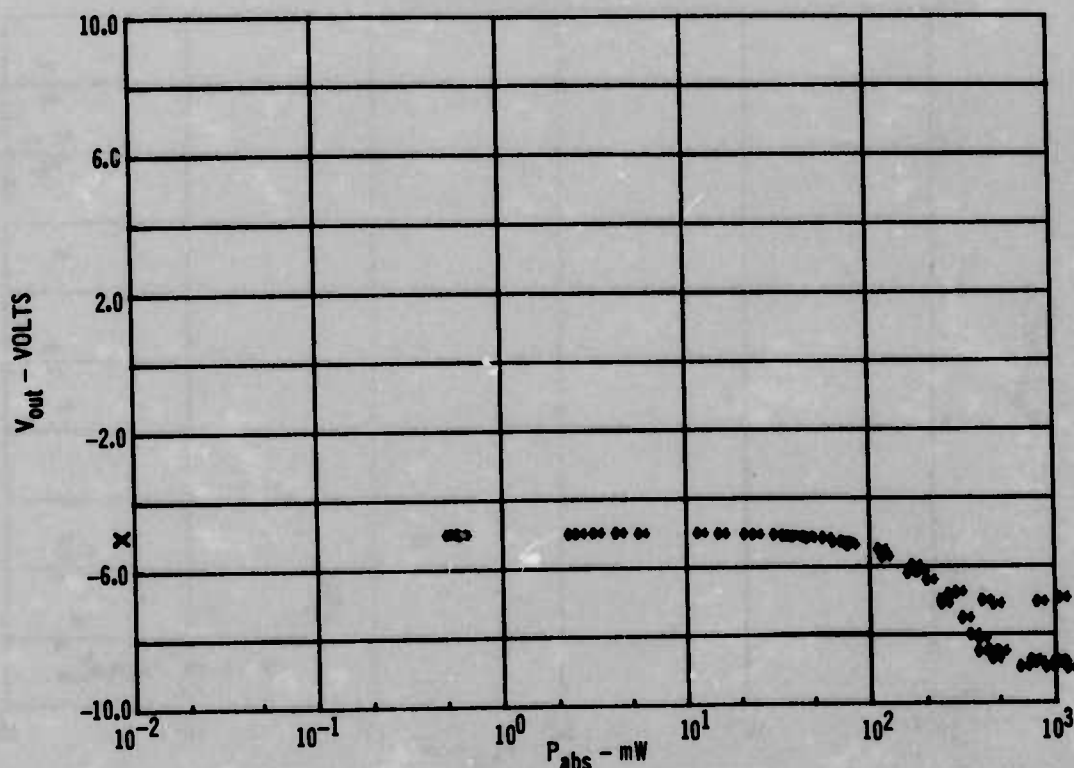
FIGURE A-12 741 FLAT PACK VS 741 TO-5 SUSCEPTIBILITY AT 5.6 GHz

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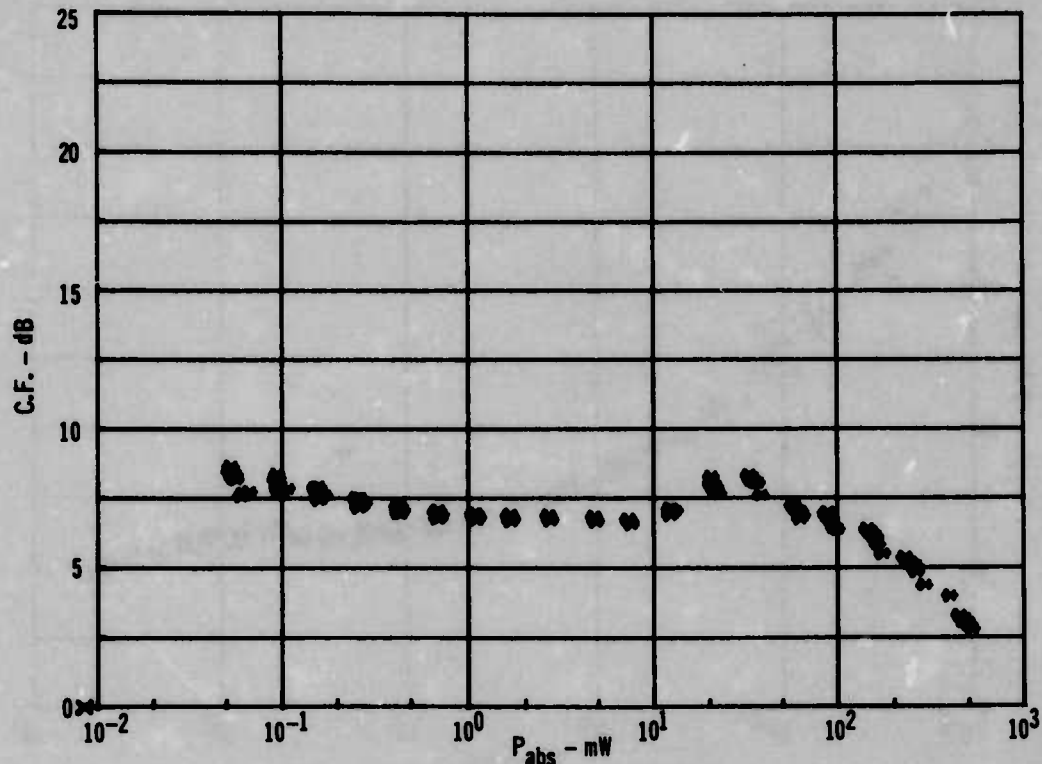


(a) Chip No. 3 in Flat Pack

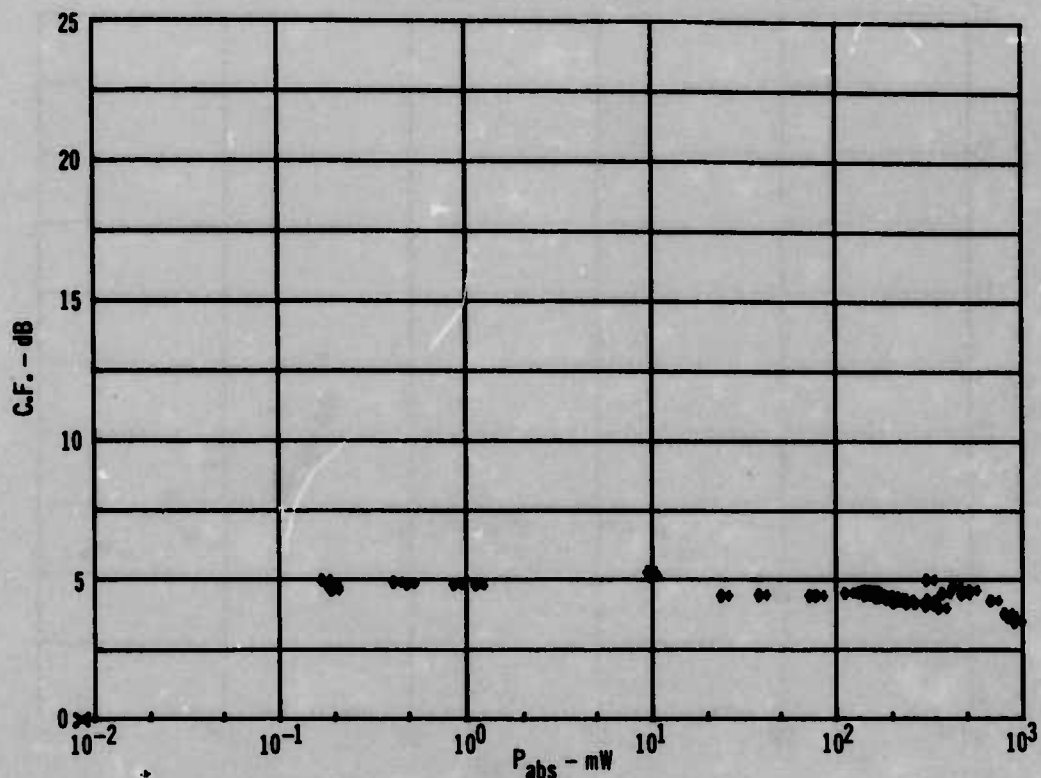


(b) Chip No. 4 in TO-5

FIGURE A-13 741 FLAT PACK VS 741 TO-5 SUSCEPTIBILITY AT 9.1 GHz



(a) Chip No. 3 in Flat Pack

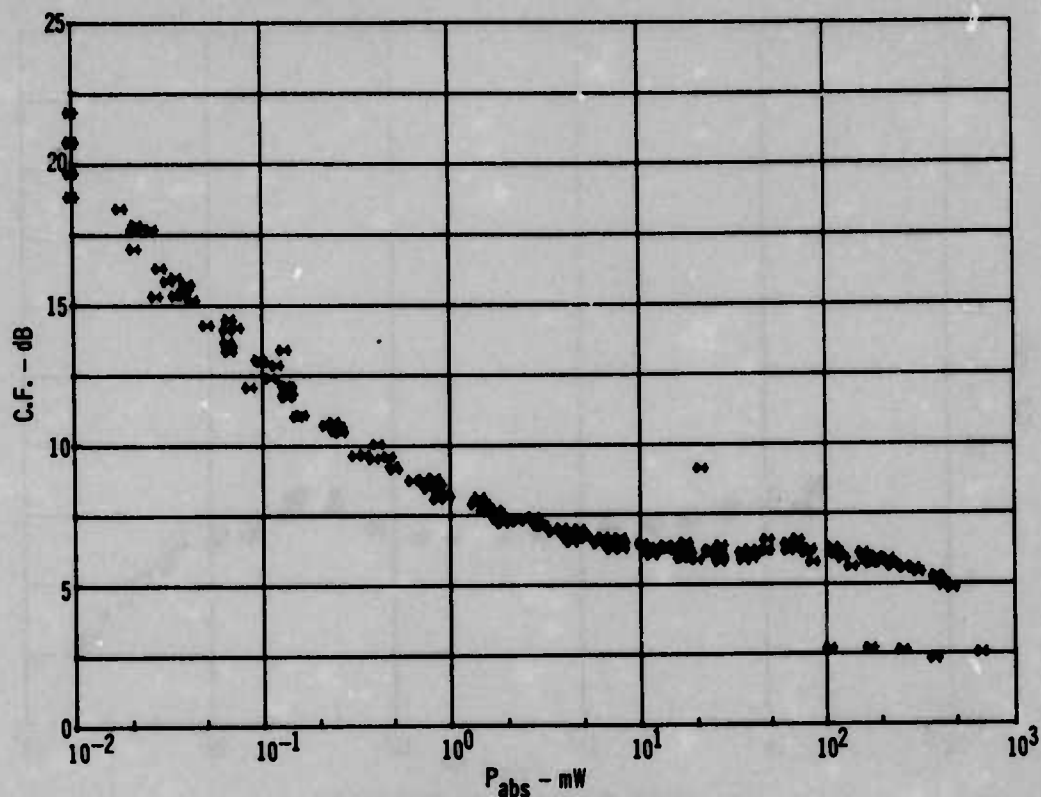


(b) Chip No. 4 in TO-5

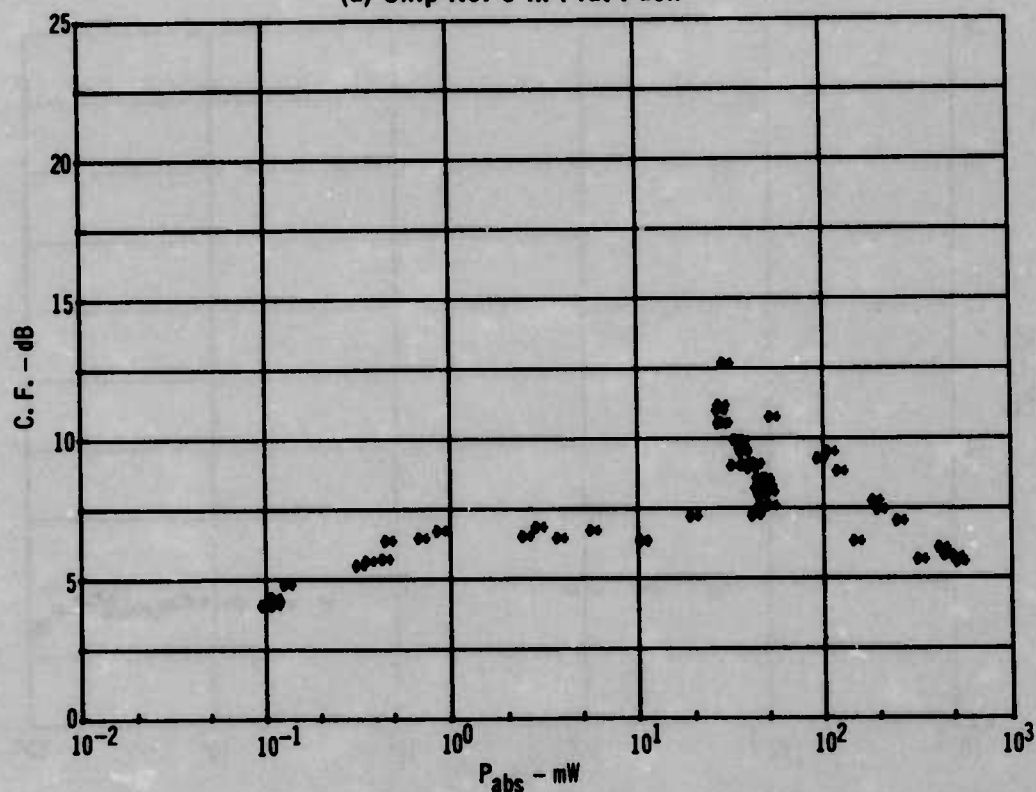
FIGURE A-14 741 FLAT PACK VS 741 TO-5 CALIBRATION FACTOR AT 220 MHz

INTEGRATED CIRCUIT SUSCEPTIBILITY

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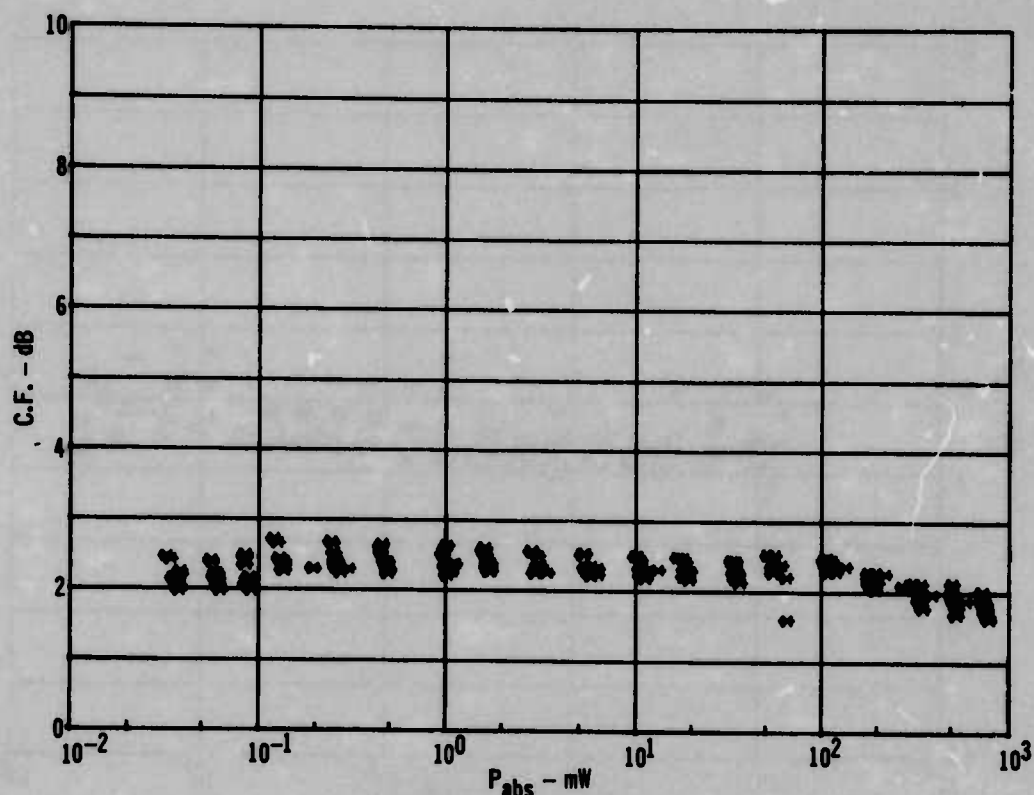


(a) Chip No. 3 in Flat Pack

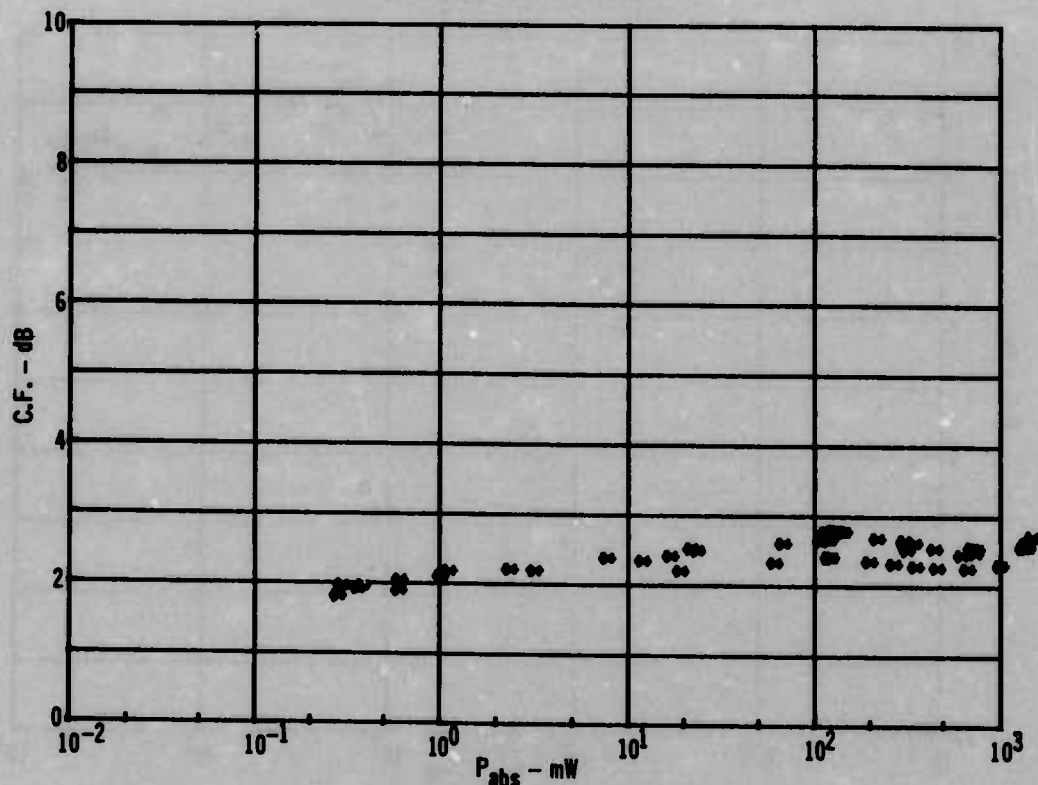


(b) Chip No. 4 in TO-5

FIGURE A-15 741 FLAT PACK VS 741 TO-5 CALIBRATION FACTOR AT 910 MHz



(a) Chip No. 3 in Flat Pack

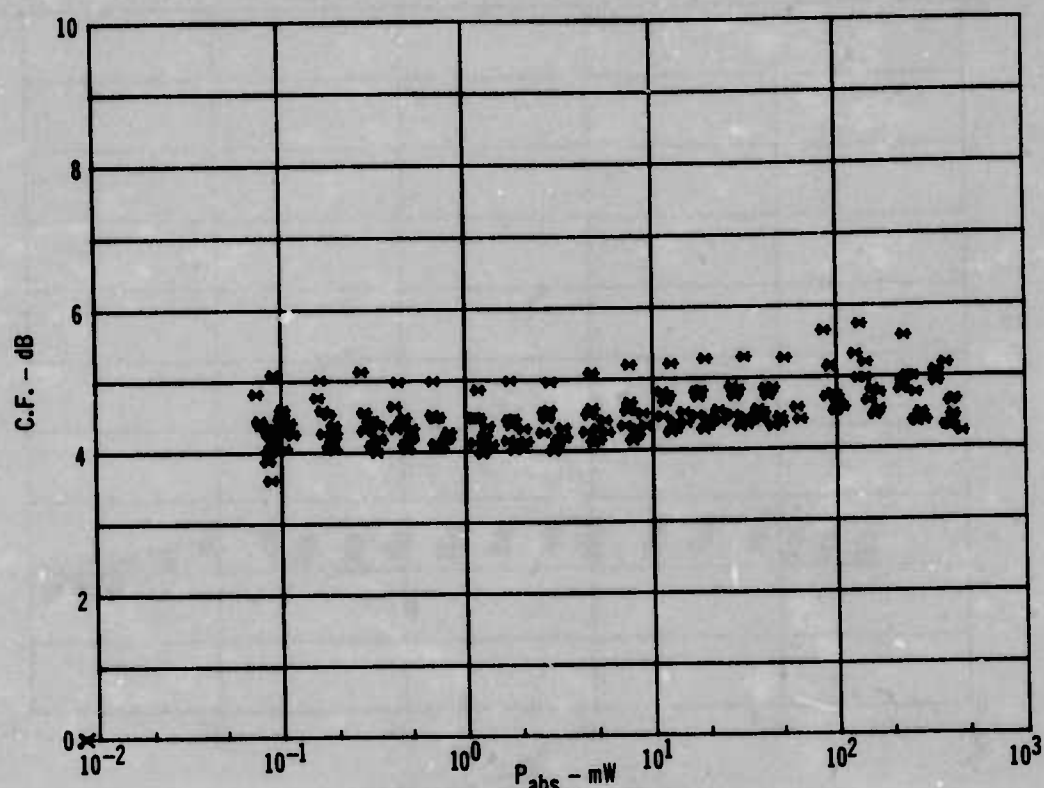


(b) Chip No. 4 in TO-5

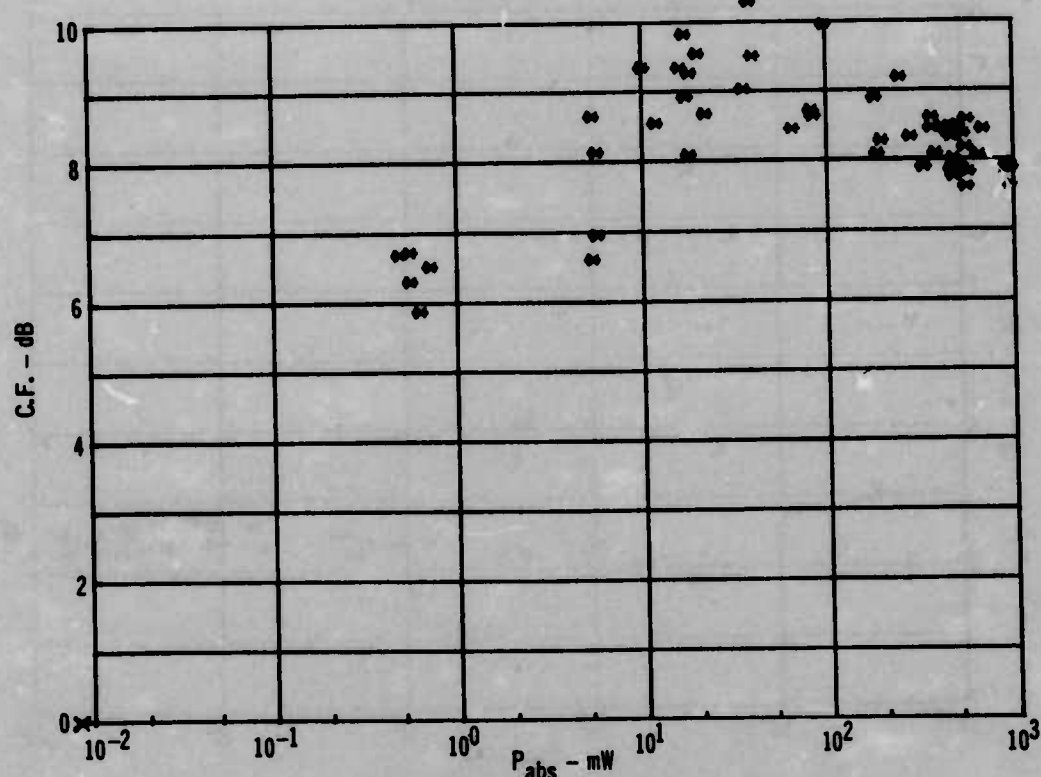
FIGURE A-16 741 FLAT PACK VS 741 TO-5 CALIBRATION FACTOR AT 3.0 GHz

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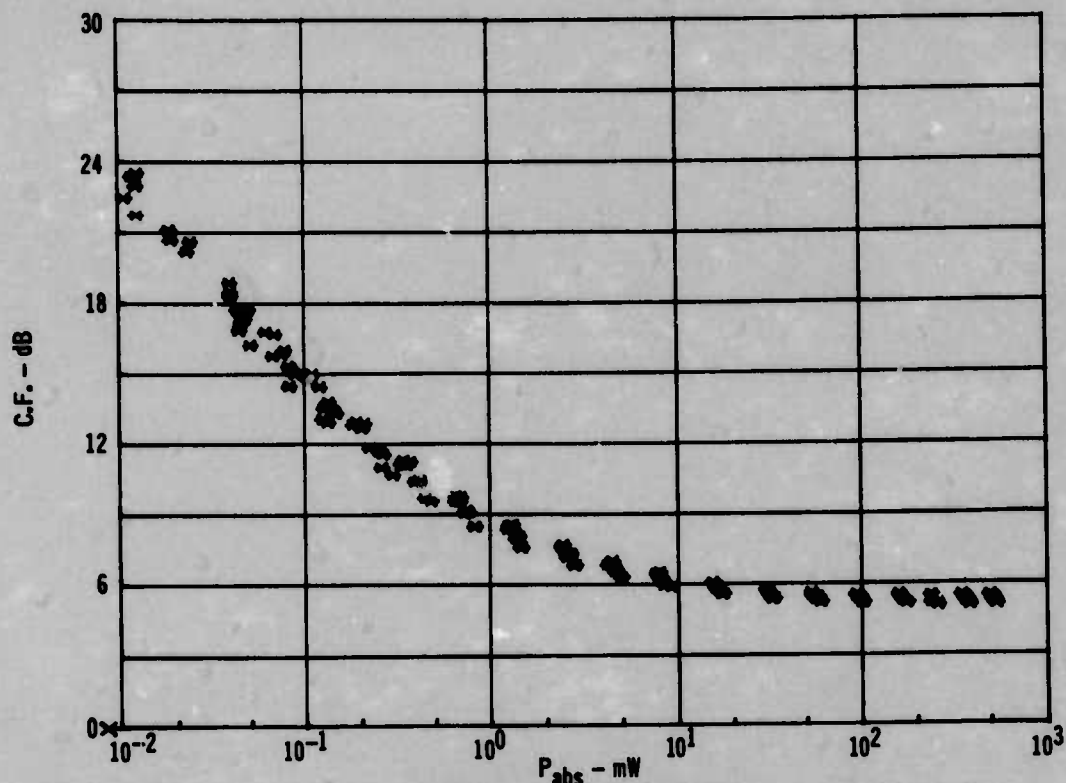


(a) Chip No. 3 in Flat Pack

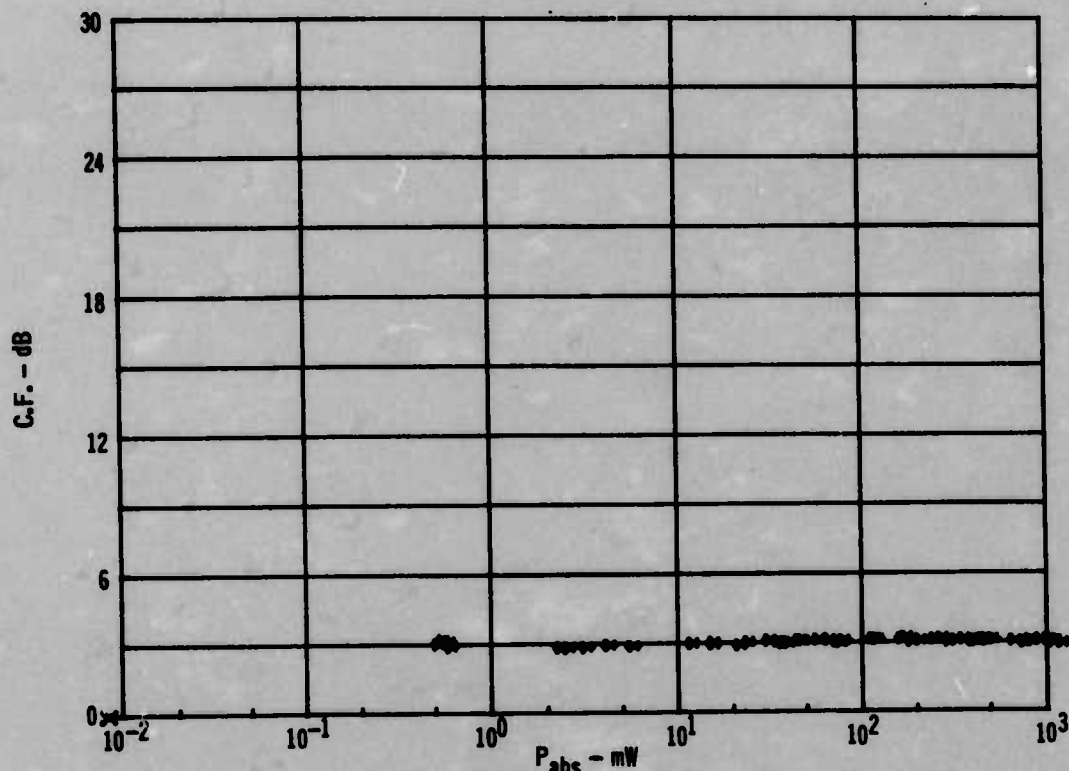


(b) Chip No. 4 in TO-5

FIGURE A-17 741 FLAT PACK VS 741 TO-5 CALIBRATION FACTOR AT 5.6 GHz



(a) Chip No. 3 in Flat Pack

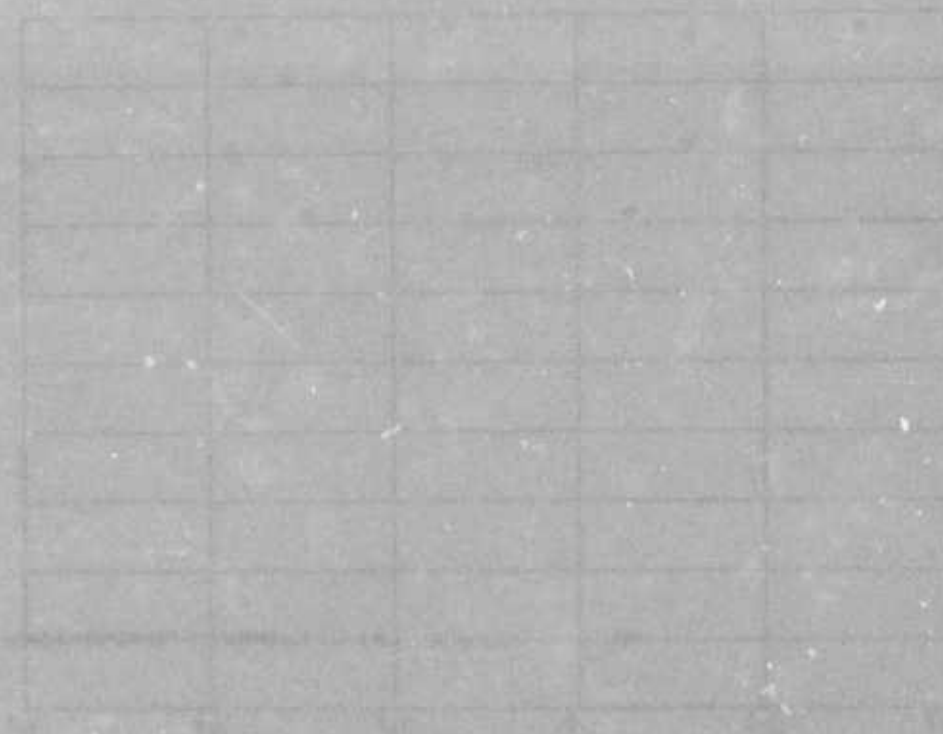
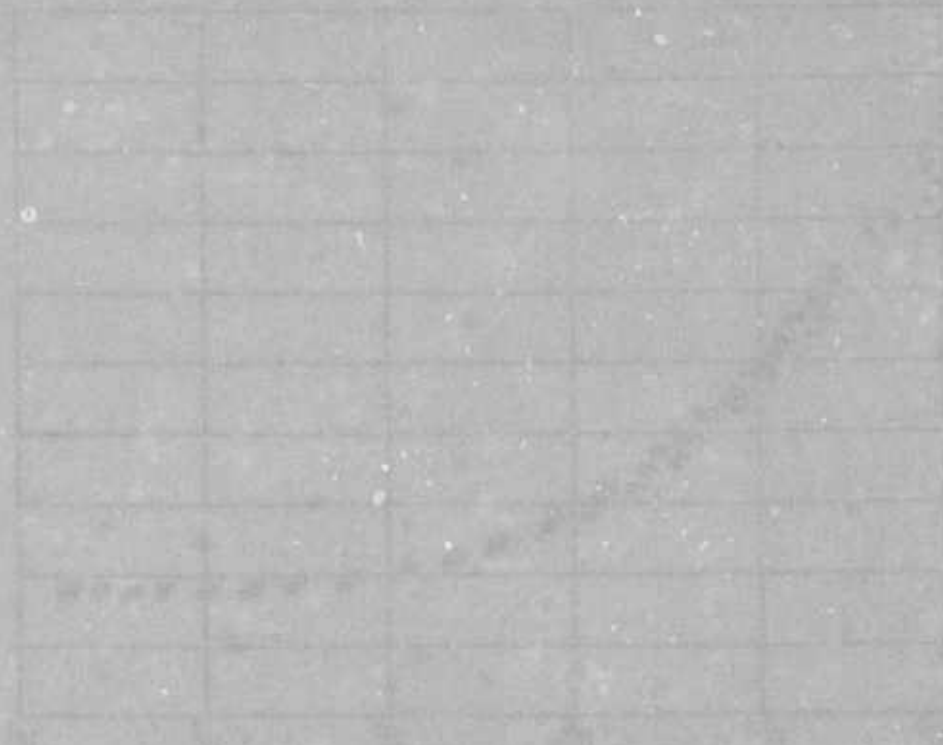


(b) Chip No. 4 in TO-5

FIGURE A-18 741 FLAT PACK VS 741 TO-5 CALIBRATION FACTOR AT 9.1 GHz

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RELATED DOCUMENTS

1. MDC E0595, "Integrated Circuit Electromagnetic Susceptibility Investigation - Study Phase Report " dated 5 May 1972.
2. MDC E0690, "Integrated Circuit Electromagnetic Susceptibility Investigation - Development Phase Report" dated 19 October 1972.
3. MDC E0883, "Integrated Circuit Electromagnetic Susceptibility Investigation - Interim Report No. 1" dated 24 August 1973.
4. MDC E0981, "Integrated Circuit Electromagnetic Susceptibility Investigation - Interim Report No. 2" dated 28 December 1973.
5. MDC E1099, "Integrated Circuit Electromagnetic Susceptibility Investigation - Test and Measurement Systems" dated 12 July 1974.
6. MDC E1101, "Integrated Circuit Electromagnetic Susceptibility Investigation - MOS NAND Gate Study" dated 26 July 1974.
7. MDC E1102, "Integrated Circuit Electromagnetic Susceptibility Investigation - Pulse Interference Study" dated 12 July 1974.
8. MDC E1103, "Integrated Circuit Electromagnetic Susceptibility Investigation - Package Effects Study" dated 12 July 1974.
9. MDC E1123, "Integrated Circuit Electromagnetic Susceptibility Investigation - Bipolar NAND Gate Study" dated 26 July 1974.
10. MDC E1124, "Integrated Circuit Electromagnetic Susceptibility Investigation - Bipolar Op Amp Study" dated 9 August 1974.
11. MDC E1125, "Integrated Circuit Electromagnetic Susceptibility Investigation - MOS/Hybrid Study" dated 9 August 1974.
12. MDC E1126, "Integrated Circuit Electromagnetic Susceptibility Investigation - Susceptibility Survey Study" dated 9 August 1974.

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