Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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April 1st, 2010 Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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SILICON TRANSISTOR

2SC5008

NPN SILICON EPITAXIAL TRANSISTOR 3 PINS ULTRA SUPER MINI MOLD

DESCRIPTION

The 2SC5008 is an NPN epitaxial silicon transistor designed for use in low noise and small signal amplifiers from VHF band to L band. Low noise figure, high gain, and high current capability achieve a very wide dynamic range and excellent linearity. This is achieved by direct nitride passivated base surface, process (NEST2 process) which is an NEC proprietary fabrication technique.

FEATURES

- · Low Voltage Use.
- High ft: 8.0 GHz TYP. (@ VcE = 3 V, Ic = 5 mA, f = 2 GHz)
- Low Cre: 0.3 pF TYP. (@ VcE = 3 V, IE = 0, f = 1 MHz)
- Low NF: 1.9 dB TYP. (@ VcE = 3 V, Ic = 5 mA, f = 2 GHz)
- High $|S_{21e}|^2$: 7.5 dB TYP. (@ VcE = 3 V, Ic = 5 mA, f = 2 GHz)
- · Ultra Super Mini Mold Package.

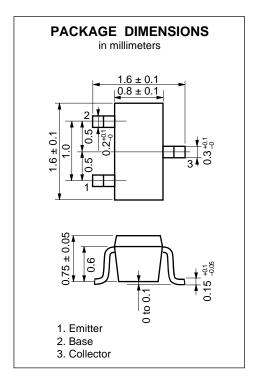
ORDERING INFORMATION

PART NUMBER	QUANTITY	PACKING STYLE
2SC5008	50 pcs./Unit	Embossed tape 8 mm wide.
2SC5008-T1	3 kpcs./Reel	Pin3 (Collector) face to perforation side of the tape.

* Please contact with responsible NEC person, if you require evaluation sample. Unit sample quantity shall be 50 pcs.

ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

Collector to Base Voltage	Vсво	20	V
Collector to Emitter Voltage	Vceo	10	V
Emitter to Base Voltage	Vево	1.5	V
Collector Current	Ic	35	mA
Total Power Dissipation	Рт	125 mW	
Junction Temperature	T_j	150	° C
Storage Temperature	Tstg	-65 to + 150	° C





ELECTRICAL CHARACTERISTICS (TA = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	Ісво			1.0	μΑ	Vcb = 10 V, IE = 0
Emitter Cutoff Current	ІЕВО			1.0	μΑ	VEB = 1 V, Ic = 0
DC Current Gain	hfe	80		160		Vce = 3 V, lc = 5 mA*1
Gain Bandwidth Product	f⊤	5.5	8.0		GHz	VcE = 3 V, Ic = 5 mA
Feed-back Capacitance	Cre		0.3	0.7	pF	Vcb = 3 V, IE = 0, f = 1 MHz*2
Insertion Power Gain	S _{21e} ²	5.5	7.5		dB	VcE = 3 V, Ic = 5 mA, f = 2 GHz
Noise Figure	NF		1.9	3.2	dB	Vce = 3 V, Ic = 5 mA, f = 2 GHz

^{*1} Pulse Measurement PW \leq 350 μ s, Duty Cycle \leq 2 %

hfe Classification

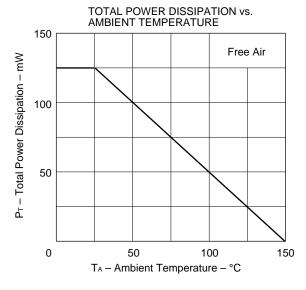
RANK	FB
Marking	44
hfe	80 to 160

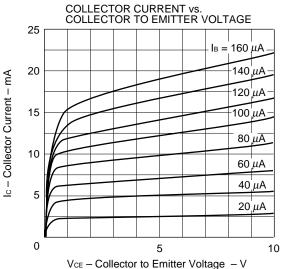
2

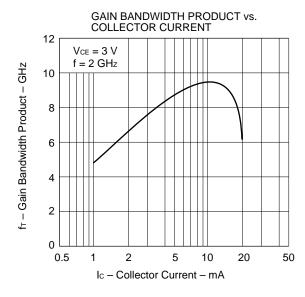
^{*2} The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitance bridge.

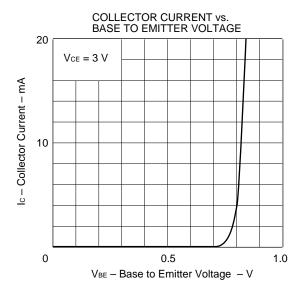


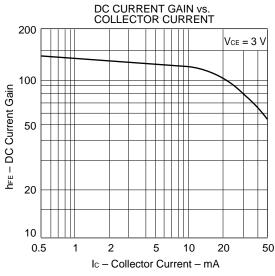
TYPICAL CHARACTERISTICS (TA = 25 °C)

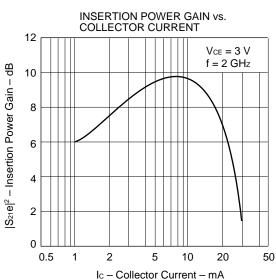


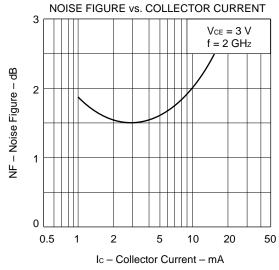


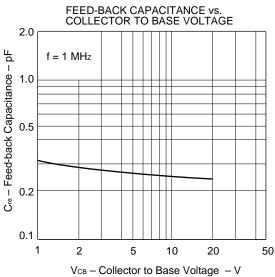


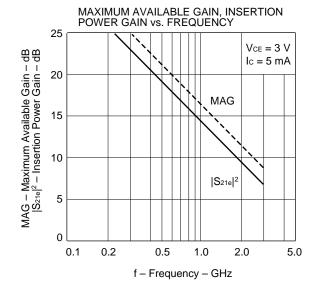












Vce	= 3 V, Ic = 10 m/	A $Z_0 = 50$	O						
·ol	FREQUENCY		511	S2	21	S	12	S	22
	MHz 100.00 200.00	MAG .739 .617	ANG -23.1 -45.5	MAG 15.190 13.966	ANG 151.5 131.9	MAG .016 .027	ANG 74.9 63.0	MAG .922 .804	ANG -13.6 -22.2
	300.00 400.00 500.00	.507 .414 .344	-64.6 -81.0 -94.7	12.474 10.826 9.421	115.9 102.7 91.8	.035 .042 .049	57.3 51.8 49.7	.699 .632 .583	-25.8 -27.3 -28.1
	600.00 700.00	.296 .260	−105.9 −116.6	8.147 7.211	82.9 74.9	.055 .062	47.0 44.4	.550 .525	-28.1 -28.3
	800.00 900.00 1000.00	.236 .218 .205	-126.3 -136.2 -144.8	6.434 5.806 5.288	67.7 60.9 54.6	.068 .075 .083	41.8 39.1 36.4	.506 .490 .477	-28.7 -28.9 -29.6
	1100.00 1200.00 1300.00	.199 .194 .193	-153.1 -161.6 -168.9	4.864 4.500 4.191	48.6 42.7 37.0	.089 .096 .102	33.4 30.2 27.7	.466 .457 .449	-29.9 -31.0 -31.7
	1400.00 1500.00	.194 .196	-175.6 178.7	3.908 3.680	31.4 26.2	.111 .118	24.2 21.0	.441 .435	-32.8 -33.9
	1600.00 1700.00 1800.00	.202 .214 .222	173.5 167.9 161.7	3.489 3.317 3.154	20.7 15.0 9.6	.125 .133 .139	17.6 12.6 9.4	.429 .417 .406	-35.5 -37.2 -38.2
	1900.00 2000.00 2100.00	.229 .237 .246	156.3 151.7 147.5	2.994 2.857 2.748	4.2 -1.0 -6.1	.145 .152 .159	6.0 2.6 9	.397 .390 .381	-39.4 -40.5 -42.1
	2200.00 2300.00 2400.00	.253 .263 .271	144.6 140.9 137.9	2.626 2.539 2.445	-11.1 -16.2 -21.3	.167 .174 .182	-4.6 -8.0 -11.6	.374 .366 .357	-43.6 -45.2 -46.8
	2500.00 2600.00	.283 .292	134.8 132.0	2.363 2.288	-26.3 -31.4	.190 .197	−15.2 −19.2	.347 .338	-48.4 -50.6
	2700.00 2800.00 2900.00	.303 .315 .326	129.7 127.4 125.0	2.218 2.147 2.085	-36.4 -41.4 -46.3	.204 .211 .220	-22.9 -26.7 -30.8	.328 .318 .309	-52.5 -54.8 -56.9
	3000.00	.339	122.7	2.032	- 51.2	.227	-34.2	.299	-59.5
Vce	= 3 V, Ic = 7 mA FREQUENCY		Ω 611	S2	21	S	12	S	22
VCE	FREQUENCY MHz 100.00	MAG .815	ANG –17.7	MAG 11.972	ANG 155.6	MAG .016	ANG 77.0	MAG .947	ANG -11.5
VCE	MHz 100.00 200.00 300.00 400.00	MAG .815 .732 .634 .539	ANG -17.7 -34.0 -50.1 -64.9	MAG 11.972 11.228 10.480 9.549	ANG 155.6 138.4 123.5 110.7	MAG .016 .029 .039 .047	ANG 77.0 63.4 56.1 51.8	MAG .947 .855 .757 .687	ANG -11.5 -20.4 -25.1 -27.9
Vce	MHz 100.00 200.00 300.00 400.00 500.00 600.00	MAG .815 .732 .634 .539 .455	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6	MAG 11.972 11.228 10.480 9.549 8.722 7.703	ANG 155.6 138.4 123.5 110.7 99.0 89.1	MAG .016 .029 .039 .047 .054	ANG 77.0 63.4 56.1 51.8 47.4 44.0	MAG .947 .855 .757 .687 .630	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5
VCE	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	MAG .815 .732 .634 .539 .455 .392 .336 .297	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9	MAG .016 .029 .039 .047 .054 .060 .066 .073	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8	MAG .947 .855 .757 .687 .630 .589 .557 .532	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 600.00 700.00 800.00 900.00 1000.00 1100.00 1200.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8 -167.7	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900 3.674	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9 28.2	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106 .113	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6 -36.6
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1100.00 1200.00 1300.00 1400.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203 .202 .205 .214 .219	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5 14.3 10.2 6.4	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449 .440 .433 .421	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203 .202 .205 .214	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8 -167.7 -173.8 179.6	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900 3.674 3.478 3.316 3.153 3.001 2.874	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9 28.2 22.7 17.3	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106 .113 .121 .128 .135 .141 .146 .153	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5 14.3 10.2 6.4 3.5 0.0	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449 .449 .440 .433 .421 .409 .399	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6 -36.6 -37.8 -39.7
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2300.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203 .202 .205 .214 .219 .223 .230 .236 .244 .254	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8 -167.7 -173.8 179.6 172.5 165.7 160.0 155.4 151.6 147.1	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900 3.674 3.478 3.316 3.153 3.001 2.874 2.753 2.631 2.548	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9 28.2 22.7 17.3 11.6 6.0 -7 -4.6 -9.6 -14.9	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106 .113 .121 .128 .135 .141 .146 .153 .160 .167 .174	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5 14.3 10.2 6.4 3.5 0.0 -3.2 -6.9 -10.4	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449 .440 .433 .421 .409 .399 .391 .382 .374	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6 -36.6 -37.8 -39.7 -40.7 -41.7 -43.0 -44.4 -45.7 -47.2
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203 .202 .205 .214 .219 .223 .230 .236 .244 .219 .223 .230 .236 .244 .219 .223 .230 .236 .244 .219 .223 .230 .236 .244 .219 .223 .236 .237 .237 .238 .238 .238 .238 .238 .238 .249 .249 .249 .258 .268 .268 .268 .268 .268 .268 .268 .26	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8 -167.7 -173.8 179.6 172.5 165.7 160.0 155.4 151.6 147.1 143.5 140.2 137.1	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900 3.674 3.478 3.316 3.153 3.001 2.874 2.753 2.631 2.548 2.453 2.370 2.295	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9 28.2 22.7 17.3 11.6 6.0 7 -4.6 -9.6 -14.9 -20.0 -25.0 -30.2	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106 .113 .121 .128 .135 .141 .146 .153 .160 .167 .174 .181 .189 .196	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5 14.3 10.2 6.4 3.5 0.0 -3.2 -6.9 -10.4 -13.8 -17.4 -21.0	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449 .440 .433 .421 .409 .399 .391 .382 .374 .365 .356 .346	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6 -36.6 -37.8 -39.7 -40.7 -41.7 -43.0 -44.4 -45.7 -47.2 -49.0 -50.5 -52.7
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2100.00 2200.00 2300.00 2400.00 2500.00	MAG .815 .732 .634 .539 .455 .392 .336 .297 .268 .244 .228 .216 .208 .203 .202 .205 .214 .219 .223 .230 .236 .244 .219 .223	ANG -17.7 -34.0 -50.1 -64.9 -78.9 -89.6 -100.4 -110.0 -119.5 -128.0 -136.6 -145.2 -153.4 -160.8 -167.7 -173.8 179.6 172.5 165.7 160.0 155.4 151.6 147.1 143.5 140.2	MAG 11.972 11.228 10.480 9.549 8.722 7.703 6.951 6.265 5.700 5.221 4.802 4.479 4.169 3.900 3.674 3.478 3.316 3.153 3.001 2.874 2.753 2.631 2.548 2.453 2.370	ANG 155.6 138.4 123.5 110.7 99.0 89.1 80.3 72.2 64.9 58.3 51.8 45.5 39.6 33.9 28.2 22.7 17.3 11.6 6.0 .7 -4.6 -9.6 -14.9 -20.0 -25.0	MAG .016 .029 .039 .047 .054 .060 .066 .073 .079 .086 .092 .098 .106 .113 .121 .128 .135 .141 .146 .153 .160 .167 .174 .181 .189	ANG 77.0 63.4 56.1 51.8 47.4 44.0 41.4 38.5 35.8 32.7 29.7 27.4 24.0 21.1 17.5 14.3 10.2 6.4 3.5 0.0 -3.2 -6.9 -10.4 -13.8 -17.4	MAG .947 .855 .757 .687 .630 .589 .557 .532 .511 .494 .480 .468 .459 .449 .440 .433 .421 .409 .399 .391 .382 .374 .365 .356	ANG -11.5 -20.4 -25.1 -27.9 -29.6 -30.5 -30.9 -31.5 -31.9 -32.5 -32.9 -33.8 -34.4 -35.6 -36.6 -37.8 -39.7 -40.7 -41.7 -43.0 -44.4 -45.7 -47.2 -49.0 -50.5



Vce = 3 V, Ic = 5 m. FREQUENCY		Ω 611	S2	21	s	12	S	22
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100.00	.870	-13.9	9.067	158.8	.017	76.2	.964	-9.7
200.00	.809	-27.3	8.687	143.1	.031	65.8	.897	-17.8
300.00	.733	-40.3	8.368	129.3	.042	58.0	.814	-23.3
400.00	.661	-53.0	7.864	117.5	.052	51.2	.748	-27.0
500.00	.575	-66.1	7.479	106.3	.059	45.9	.687	-29.5
600.00	.510	-76.2	6.765	96.3	.066	41.4	.643	-31.2
700.00	.440	-87.2	6.297	86.6	.072	38.2	.604	-32.3
800.00	.387	-96.8	5.812	77.7	.078	34.7	.574	-33.3
900.00	.345	-106.1	5.365	69.7	.083	32.7	.547	-33.9
1000.00	.309	-114.9	4.964	62.4	.090	29.2	.527	-34.7
1100.00	.283	-123.3	4.616	55.4	.096	25.9	.509	-35.2
1200.00	.261	-131.9	4.298	49.0	.101	23.0	.493	-36.1
1300.00	.246	-139.7	4.032	42.4	.107	20.4	.481	-36.7
1400.00	.234	-147.4	3.784	36.7	.115	17.1	.471	-37.8
1500.00	.227	-154.7	3.568	30.8	.122	14.2	.460	-38.9
1600.00	.227	-161.3	3.385	25.0	.129	11.2	.450	-40.2
1700.00	.231	-168.9	3.230	19.1	.137	7.1	.438	-41.9
1800.00	.231	-176.7	3.069	13.5	.141	3.4	.425	-42.8
1900.00	.233	176.3	2.929	7.8	.148	.7	.413	-44.0
2000.00	.237	169.5	2.802	2.3	.153	-2.4	.405	-45.2
2100.00	.242	163.9	2.690	-3.0	.159	-6.1	.396	-46.5
2200.00	.247	159.4	2.583	-8.3	.166	-9.3	.387	-48.0
2300.00	.256	154.3	2.495	-13.6	.173	-12.8	.377	-49.5
2400.00	.264	150.1	2.404	-18.8	.179	-16.2	.367	-51.1
2500.00	.274	146.2	2.324	-23.9	.187	-19.3	.358	-52.7
2600.00	.282	142.3	2.251	-29.2	.194	-23.3	.348	-54.8
2700.00	.292	139.2	2.188	-34.3	.200	-26.9	.339	-56.8
2800.00	.303	135.9	2.117	-39.4	.207	-30.2	.328	-59.0
2900.00	.313	132.9	2.056	-44.5	.215	-34.1	.319	-60.9
3000.00	.325	130.0	2.003	-49.5	.223	-37.5	.309	-63.5
Vce = 3 V. lc = 3 m	A. Zo = 50 Ω	2						
Vce = 3 V, Ic = 3 ma		Ω 611	S2	21	S	12	S	22
FREQUENCY	S	311						
FREQUENCY MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
FREQUENCY MHz 100.00	MAG .936	ANG –10.5	MAG 5.612	ANG 163.6	MAG .017	ANG 79.6	MAG .981	ANG -7.1
FREQUENCY MHz 100.00 200.00	MAG .936 .892	ANG -10.5 -20.4	MAG 5.612 5.628	ANG 163.6 148.9	MAG .017 .034	ANG 79.6 69.7	MAG .981 .944	ANG -7.1 -14.0
FREQUENCY MHz 100.00 200.00 300.00	MAG .936 .892 .842	ANG -10.5 -20.4 -30.5	MAG 5.612 5.628 5.602	ANG 163.6 148.9 136.8	MAG .017 .034 .048	ANG 79.6 69.7 60.6	MAG .981 .944 .887	ANG -7.1 -14.0 -19.3
FREQUENCY MHz 100.00 200.00 300.00 400.00	MAG .936 .892 .842 .785	ANG -10.5 -20.4 -30.5 -41.2	MAG 5.612 5.628 5.602 5.393	ANG 163.6 148.9 136.8 126.0	MAG .017 .034 .048 .060	ANG 79.6 69.7 60.6 53.2	MAG .981 .944 .887 .837	ANG -7.1 -14.0 -19.3 -23.7
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00	MAG .936 .892 .842 .785 .732	ANG -10.5 -20.4 -30.5 -41.2 -50.8	MAG 5.612 5.628 5.602 5.393 5.328	ANG 163.6 148.9 136.8 126.0 116.2	MAG .017 .034 .048 .060	ANG 79.6 69.7 60.6 53.2 46.4	MAG .981 .944 .887 .837	ANG -7.1 -14.0 -19.3 -23.7 -27.2
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00	MAG .936 .892 .842 .785 .732 .681	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2	MAG 5.612 5.628 5.602 5.393 5.328 4.924	ANG 163.6 148.9 136.8 126.0 116.2 106.6	MAG .017 .034 .048 .060 .069	ANG 79.6 69.7 60.6 53.2 46.4 40.6	MAG .981 .944 .887 .837 .782	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00	MAG .936 .892 .842 .785 .732 .681	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2	MAG .017 .034 .048 .060 .069 .077	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8	MAG .981 .944 .887 .837 .782 .740 .698	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00	MAG .936 .892 .842 .785 .732 .681 .618	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0	MAG .017 .034 .048 .060 .069 .077 .084	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0	MAG .981 .944 .887 .837 .782 .740 .698	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	MAG .936 .892 .842 .785 .732 .681 .618 .564	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4	MAG .017 .034 .048 .060 .069 .077 .084 .090	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0	MAG .981 .944 .887 .837 .782 .740 .698 .663	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1100.00 1200.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5
FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 700.00 800.00 900.00 1100.00 1200.00 1300.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .106 .110	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .110 .116 .111	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116 .121	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116 .121	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.790 3.588 3.410 3.234 3.086 2.960	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116 .121 .126 .134	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .110 .116 .121 .126 .134 .140	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1800.00 1900.00 2000.00 2100.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 3	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .273	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .106 .110 .116 .121 .126 .134 .140 .143 .148 .153 .159 .164	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1800.00 1900.00 2000.00 2100.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .273 .275 .280	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -158.6 -166.4 -174.1 179.6 174.0 167.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9 -11.5	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159 .164 .170	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .273	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .106 .110 .116 .121 .126 .134 .140 .143 .148 .153 .159 .164	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1700.00 1800.00 1900.00 2100.00 2200.00 2300.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .273 .275 .280 .284	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9 -11.5	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159 .164 .170	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2300.00 2400.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .275 .280 .284 .292	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7 152.8	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177 2.109	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9 -11.5 -16.9 -22.2 -27.6	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159 .164 .170 .176	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9 -20.9 -23.8 -27.3	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435 .428 .417 .406 .396 .386	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7 -54.2
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2300.00 2400.00 2500.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .275 .280 .284 .292 .298 .307	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7 152.8 148.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177 2.109 2.051	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.43 -5.9 -11.5 -16.9 -22.2 -27.6 -32.9	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159 .164 .170 .176 .182	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9 -20.9 -23.8	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435 .428 .417 .406 .396	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -39.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7 -54.2 -55.9
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .275 .280 .284 .292	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7 152.8 148.7 144.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177 2.109	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.4 -3 -5.9 -11.5 -16.9 -22.2 -27.6	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .121 .126 .134 .140 .143 .148 .153 .159 .164 .170 .176 .182 .187 .194 .200	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9 -20.9 -23.8 -27.3	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435 .428 .417 .406 .396 .386	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7 -54.2 -55.9 -57.9
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00 2600.00 2700.00 2800.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .275 .280 .284 .292 .298 .307 .316 .326	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7 152.8 148.7 144.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.991 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177 2.109 2.051 1.988 1.934	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.43 -5.9 -11.5 -16.9 -22.2 -27.6 -32.9 -38.1 -43.4	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .111 .126 .134 .140 .143 .148 .153 .159 .164 .170 .176 .182 .187 .194 .200 .207	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9 -20.9 -23.8 -27.3 -30.7	MAG .981 .944 .887 .837 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435 .428 .417 .406 .396 .376 .366 .356	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.6 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7 -54.2 -55.9 -57.9 -61.8 -64.0
MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1500.00 1600.00 1700.00 1800.00 1900.00 2100.00 2200.00 2300.00 2400.00 2500.00 2600.00 2700.00 2800.00	MAG .936 .892 .842 .785 .732 .681 .618 .564 .510 .459 .413 .375 .350 .325 .307 .295 .289 .283 .276 .273 .273 .275 .280 .284 .292 .298 .307 .316	ANG -10.5 -20.4 -30.5 -41.2 -50.8 -59.2 -68.7 -77.9 -86.9 -96.0 -104.8 -113.0 -120.8 -128.3 -135.8 -142.9 -150.9 -158.6 -166.4 -174.1 179.6 174.0 167.8 162.6 157.7 152.8 148.7 144.7	MAG 5.612 5.628 5.602 5.393 5.328 4.924 4.767 4.575 4.365 4.191 3.790 3.588 3.410 3.234 3.086 2.960 2.830 2.707 2.597 2.504 2.405 2.332 2.248 2.177 2.109 2.051 1.988	ANG 163.6 148.9 136.8 126.0 116.2 106.6 97.2 88.0 79.4 70.9 62.9 55.7 48.7 42.0 35.7 29.5 23.3 17.0 11.2 5.43 -5.9 -11.5 -16.9 -22.2 -27.6 -32.9 -38.1	MAG .017 .034 .048 .060 .069 .077 .084 .090 .094 .100 .116 .121 .126 .134 .140 .143 .148 .153 .159 .164 .170 .176 .182 .187 .194 .200	ANG 79.6 69.7 60.6 53.2 46.4 40.6 35.8 31.0 27.0 23.5 19.8 17.1 14.2 11.1 7.8 4.9 1.0 -2.7 -5.6 -8.5 -11.6 -14.4 -17.9 -20.9 -23.8 -27.3 -30.7 -33.8	MAG .981 .944 .887 .782 .740 .698 .663 .627 .599 .577 .558 .542 .525 .513 .499 .486 .471 .457 .448 .435 .428 .417 .406 .396 .386 .376	ANG -7.1 -14.0 -19.3 -23.7 -27.2 -29.9 -32.0 -33.9 -35.2 -36.5 -37.5 -38.5 -40.8 -41.8 -43.2 -44.8 -46.0 -47.1 -48.4 -49.8 -51.3 -52.7 -54.2 -55.9 -57.9 -61.8

Vc= - 3 V	Ic = 1 mA, Z	'0 = 50 O							
	UENCY	.0 = 30 <u>\$2</u> \$11		S21		S12		S22	
FREQU	DENCT	311		321		312		322	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
	100.00	.986	-6.4	1.963	167.5	.019	82.2	.996	-4.0
	200.00	.971	-13.0	2.022	157.2	.036	73.4	.987	-8.1
	300.00	.958	-19.5	2.075	147.4	.053	66.7	.966	-11.8
	400.00	.936	-26.5	2.082	137.6	.070	58.7	.953	-15.4
	500.00	.914	-32.8	2.114	129.5	.084	52.1	.929	-18.7
	600.00	.890	-39.0	2.011	120.8	.098	45.0	.909	-22.0
	700.00	.859	-45.3	1.993	112.4	.109	38.5	.883	-24.9
	800.00	.833	-51.7	1.967	103.7	.120	32.1	.859	-27.7
	900.00 1000.00	.801 .769	-58.0 -65.2	1.916 1.952	95.7 88.0	.127 .137	25.8 20.2	.830 .803	-30.5 -33.0
	1000.00	.732	-03.2 -72.5	1.932	79.8	.137	20.2 14.4	.603 .776	-35.0 -35.0
	1200.00	.693	-80.0	1.987	73.4 72.4	.148	9.7	.754	-37.1
	1300.00	.663	-86.7	1.945	64.6	.154	4.5	.734	-39.0
	1400.00	.626	-93.9	1.936	57.2	.157	1	.712	-41.1
	1500.00	.596	-100.5	1.893	49.6	.162	-4.4	.693	-42.9
1	1600.00	.570	-107.2	1.852	42.8	.165	-8.3	.676	-44.6
1	1700.00	.542	-114.9	1.845	35.3	.170	-12.9	.660	-46.5
	1800.00	.523	-121.5	1.786	28.6	.172	−17.5	.640	-48.3
	1900.00	.497	-129.1	1.766	21.5	.174	-21.5	.622	-49.9
	2000.00	.471	-137.3	1.746	14.6	.174	-25.3	.610	-51.7
	2100.00	.456	-144.2	1.707	8.2	.174	-28.5	.595	-53.3
	2200.00	.443	-151.0	1.661	1.6	.176	-31.9	.583	-55.0
	2300.00 2400.00	.430 .424	-158.3 -164.8	1.648 1.598	-4.8 -10.9	.177 .178	–35.1 –38.1	.567 .557	-56.8 -58.6
	2500.00	.424	-104.8 -171.3	1.565	-10.9 -17.0	.170	-30.1 -40.5	.545	-60.5
	2600.00	.414	-171.3 -177.8	1.534	-17.0 -23.1	.182	-43.6	.534	-62.6
	2700.00	.412	176.4	1.504	-29.1	.183	-46.5	.523	-64.6
	2800.00	.413	170.5	1.466	-34.9	.186	-48.7	.515	-66.9
	2900.00	.414	164.7	1.442	-40.6	.189	-51.4	.504	-69.2
3	3000.00	.419	159.5	1.413	-46.3	.191	-53.5	.495	-71.7
	Ic = 5 mA, Z			S 21		Q 12		522	
	Ic = 5 mA, Z UENCY	½o = 50 Ω S11		S21		\$ 12		S22	
FREQU	UENCY	S11			ANG				
FREQL			ANG –19.1	S21 MAG 8.397	ANG 156.6	MAG	ANG 75.5	S22 MAG .949	ANG –11.9
FREQU	UENCY MHz	S11 MAG	ANG	MAG			ANG	MAG	ANG
FREQU	MHz 100.00	S11 MAG .849	ANG -19.1	MAG 8.397 8.259 7.901	156.6	MAG .021	ANG 75.5	MAG .949 .866 .767	ANG -11.9
FREQU	MHz 100.00 200.00 300.00 400.00	S11 MAG .849 .764 .681 .612	ANG -19.1 -34.1 -49.1 -63.6	MAG 8.397 8.259 7.901 7.397	156.6 139.2 125.1 113.1	MAG .021 .037 .051 .060	ANG 75.5 63.8 54.8 48.4	MAG .949 .866 .767 .689	ANG -11.9 -21.8 -28.2 -32.3
FREQU	MHz 100.00 200.00 300.00 400.00 500.00	S11 MAG .849 .764 .681 .612 .534	ANG -19.1 -34.1 -49.1 -63.6 -78.0	MAG 8.397 8.259 7.901 7.397 7.006	156.6 139.2 125.1 113.1 101.8	MAG .021 .037 .051 .060	ANG 75.5 63.8 54.8 48.4 42.2	MAG .949 .866 .767 .689	ANG -11.9 -21.8 -28.2 -32.3 -35.2
FREQU	MHz 100.00 200.00 300.00 400.00 500.00 600.00	S11 MAG .849 .764 .681 .612 .534 .473	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5	MAG 8.397 8.259 7.901 7.397 7.006 6.297	156.6 139.2 125.1 113.1 101.8 91.7	MAG .021 .037 .051 .060 .068	ANG 75.5 63.8 54.8 48.4 42.2 38.7	MAG .949 .866 .767 .689 .623	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0
FREQU	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00	S11 MAG .849 .764 .681 .612 .534 .473	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833	156.6 139.2 125.1 113.1 101.8 91.7 82.2	MAG .021 .037 .051 .060 .068 .076	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3	MAG .949 .866 .767 .689 .623 .573	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1
FREQU	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00	S11 MAG .849 .764 .681 .612 .534 .473 .414	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6	MAG .021 .037 .051 .060 .068 .076 .082	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9	MAG .949 .866 .767 .689 .623 .573 .531	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2
FREQU	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7	MAG .021 .037 .051 .060 .068 .076 .082 .089	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7	MAG .949 .866 .767 .689 .623 .573 .531 .499	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9
FREQU	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9
FREQU 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2
FREQU 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9
FREQU 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2
FREQU 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0
FREQU 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4
FREQU 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.9	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9
FREQU 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1100.00 1200.00 1500.00 1500.00 1700.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.9 1	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5
FREQU 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1100.00 1200.00 1500.00 1500.00 1700.00 1800.00	MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.9 1	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1200.00 1300.00 1400.00 1500.00 1700.00 1800.00 1700.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 1900.00 1100.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .267 .268 .273 .280 .288 .294 .301 .307	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 1900.00 1100.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4 -17.8	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186 .192	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8 -17.2	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293 .284	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2300.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301 .307 .317	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4 151.6 147.3	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347 2.260	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.2 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4 -57.0
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2200.00 2300.00 2400.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301 .307 .317 324	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4 151.6 147.3 143.6	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347 2.260 2.177	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4 -17.8 -23.0	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186 .192 .199	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8 -17.2 -20.8	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293 .284 .272	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4 -57.0 -58.9 -60.8 -63.7
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301 .307 .317 324 .334 .345 .354	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4 151.6 147.3 143.6 140.2 137.0 134.0	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347 2.260 2.177 2.105 2.037 1.977	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4 -17.8 -23.0 -28.2 -33.5 -38.6	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186 .192 .199 .207 .214 .221	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8 -17.2 -20.8 -23.9 -27.8 -31.4	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293 .284 .272 .261 .251 .241	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4 -57.0 -58.9 -60.8 -63.7 -65.9
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1700.00 1800.00 1900.00 1200.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301 .307 .317 .324 .334 .345 .354	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4 151.6 147.3 143.6 140.2 137.0 134.0 131.0	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347 2.260 2.177 2.105 2.037 1.977 1.913	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4 -17.8 -23.0 -28.2 -33.5 -38.6 -43.8	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186 .192 .199 .207 .214 .221 .228	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8 -17.2 -20.8 -27.8 -31.4 -35.3	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293 .284 .272 .261 .251 .241 .230	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4 -57.0 -58.9 -60.8 -63.7 -65.9 -68.6
FREQUENT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00 2200.00	S11 MAG .849 .764 .681 .612 .534 .473 .414 .371 .339 .314 .295 .283 .275 .270 .267 .268 .273 .280 .288 .294 .301 .307 .317 324 .334 .345 .354	ANG -19.1 -34.1 -49.1 -63.6 -78.0 -89.5 -101.5 -112.1 -122.2 -131.4 -140.2 -148.3 -156.2 -163.3 -170.3 -176.4 177.8 172.2 165.8 160.1 155.4 151.6 147.3 143.6 140.2 137.0 134.0	MAG 8.397 8.259 7.901 7.397 7.006 6.297 5.833 5.352 4.924 4.557 4.219 3.935 3.672 3.448 3.242 3.081 2.927 2.783 2.663 2.540 2.445 2.347 2.260 2.177 2.105 2.037 1.977	156.6 139.2 125.1 113.1 101.8 91.7 82.2 73.6 65.7 58.5 51.6 45.2 38.8 32.9 26.9 21.1 15.4 9.6 3.9 -1.7 -7.0 -12.4 -17.8 -23.0 -28.2 -33.5 -38.6	MAG .021 .037 .051 .060 .068 .076 .082 .089 .095 .103 .109 .115 .122 .129 .136 .143 .153 .160 .165 .171 .177 .186 .192 .199 .207 .214 .221	ANG 75.5 63.8 54.8 48.4 42.2 38.7 35.3 31.9 28.7 25.6 22.8 20.1 16.9 13.8 10.7 7.5 3.91 -3.8 -6.8 -10.1 -13.8 -17.2 -20.8 -23.9 -27.8 -31.4	MAG .949 .866 .767 .689 .623 .573 .531 .499 .472 .448 .429 .414 .398 .385 .374 .362 .353 .340 .326 .316 .304 .293 .284 .272 .261 .251 .241	ANG -11.9 -21.8 -28.2 -32.3 -35.2 -37.0 -38.1 -39.9 -40.9 -41.2 -42.2 -42.8 -44.0 -45.0 -46.4 -47.9 -49.5 -51.1 -52.2 -53.7 -55.4 -57.0 -58.9 -60.8 -63.7 -65.9



Vce	= 1 V, Ic = 3 mA	Zo = 50 ()						
VCE	FREQUENCY		<u>.</u> 511	S2	21	S	12	S	22
		_		0-		J			
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
	100.00	.928	-11.2	5.570	160.2	.022	78.7	.974	-8.7
	200.00	.876	-22.9	5.562	146.9	.040	67.5	.928	-16.9
	300.00 400.00	.821	-34.2 -45.7	5.509 5.289	134.3 123.2	.057 .070	57.4 49.7	.859 .798	-23.0 -28.0
	500.00	.758 .705	-45.7 -56.7	5.269	113.1	.070	43.3	.738	-26.0 -32.0
	600.00	.652	-66.1	4.787	103.2	.089	37.0	.689	-35.2
	700.00	.588	-76.8	4.617	93.6	.097	31.9	.640	-37.5
	800.00	.535	-87.1	4.406	84.1	.103	27.6	.601	-39.4
	900.00	.484	-97.1	4.187	75.5	.108	23.9	.565	-41.0
	1000.00	.438	-107.0	3.986	67.1	.115	20.3	.533	-42.6
	1100.00	.401	-116.3	3.771	59.1	.120	16.5	.508	-43.6
	1200.00 1300.00	.371 .350	−125.4 −133.4	3.566 3.362	51.8 44.8	.125 .131	13.4 10.3	.486 .468	-44.7 -45.7
	1400.00	.333	-141.3	3.177	38.3	.137	7.0	.449	-47.2
	1500.00	.320	-148.7	3.015	31.8	.143	4.1	.436	-48.3
	1600.00	.312	-156.1	2.872	25.8	.149	1.1	.421	-49.7
	1700.00	.310	-162.9	2.745	19.5	.157	-2.5	.408	-51.4
	1800.00	.310	-170.2	2.623	13.4	.162	-6.5	.391	-52.9
	1900.00	.309	-177.5 175.4	2.514	7.3	.165	-9.7	.377	-54.2
	2000.00 2100.00	.310 .313	175.4	2.407 2.318	1.4 -4.2	.171 .177	−12.7 −16.1	.366 .351	-55.5 -57.2
	2200.00	.317	164.9	2.227	-9.8	.182	-19.1	.343	-58.5
	2300.00	.324	159.5	2.157	-15.4	.188	-22.3	.330	-60.4
	2400.00	.331	155.0	2.076	-20.8	.194	-25.6	.319	-62.2
	2500.00	.338	150.6	2.012	-26.2	.200	-28.8	.307	-64.1
	2600.00	.346	146.5	1.947	-31.7	.207	-32.4	.296	-66.8
	2700.00	.356	142.6	1.894	-36.9	.213	-35.6	.285	-69.0
	2800.00 2900.00	.365 .375	139.0 135.7	1.833 1.782	-42.3 -47.5	.220 .226	-39.1 -42.7	.274 .265	-71.8 -74.3
	3000.00	.386	132.4	1.737	- - 47.3	.234	-46.1	.254	-74.3 -77.2
Vce	= 1 V, Ic = 1 mA FREQUENCY		2 311	S2	21	S	12	S	22
VCE	FREQUENCY	S	11						
VCE				S2 MAG 1.986	21 ANG 166.5	MAG	ANG	S MAG .993	ANG
VCE	FREQUENCY MHz	MAG .983 .968	ANG -6.8 -14.0	MAG 1.986 2.016	ANG	MAG .022 .044	ANG 83.1 73.1	MAG	ANG -4.6 -9.3
Vce	MHz 100.00 200.00 300.00	MAG .983 .968 .952	ANG -6.8 -14.0 -21.0	MAG 1.986 2.016 2.067	ANG 166.5 156.0 145.7	MAG .022 .044 .064	ANG 83.1 73.1 65.2	MAG .993 .983 .959	ANG -4.6 -9.3 -13.6
Vce	MHz 100.00 200.00 300.00 400.00	MAG .983 .968 .952 .925	ANG -6.8 -14.0 -21.0 -28.5	MAG 1.986 2.016 2.067 2.064	ANG 166.5 156.0 145.7 135.9	MAG .022 .044 .064 .083	ANG 83.1 73.1 65.2 56.7	MAG .993 .983 .959	ANG -4.6 -9.3 -13.6 -17.7
Vce	MHz 100.00 200.00 300.00 400.00 500.00	MAG .983 .968 .952 .925	ANG -6.8 -14.0 -21.0 -28.5 -35.3	MAG 1.986 2.016 2.067 2.064 2.096	ANG 166.5 156.0 145.7 135.9 127.1	MAG .022 .044 .064 .083	ANG 83.1 73.1 65.2 56.7 49.8	MAG .993 .983 .959 .942 .913	ANG -4.6 -9.3 -13.6 -17.7 -21.6
VCE	MHz 100.00 200.00 300.00 400.00 500.00 600.00	MAG .983 .968 .952 .925 .904	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992	ANG 166.5 156.0 145.7 135.9 127.1 118.1	MAG .022 .044 .064 .083 .100	ANG 83.1 73.1 65.2 56.7 49.8 42.7	MAG .993 .983 .959 .942 .913 .889	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2
Vce	MHz 100.00 200.00 300.00 400.00 500.00	MAG .983 .968 .952 .925	ANG -6.8 -14.0 -21.0 -28.5 -35.3	MAG 1.986 2.016 2.067 2.064 2.096	ANG 166.5 156.0 145.7 135.9 127.1	MAG .022 .044 .064 .083	ANG 83.1 73.1 65.2 56.7 49.8	MAG .993 .983 .959 .942 .913	ANG -4.6 -9.3 -13.6 -17.7 -21.6
Vce	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00	MAG .983 .968 .952 .925 .904 .878 .844 .816	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3	MAG .022 .044 .064 .083 .100 .116 .129 .141	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5	MAG .993 .983 .959 .942 .913 .889 .859 .829	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8
Vce	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4
Vce	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 600.00 700.00 800.00 900.00 1100.00 1200.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 600.00 700.00 800.00 900.00 1100.00 1200.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1100.00 1200.00 1300.00 1400.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686 .661 .641	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -52.2
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 -3.9 -8.9 -12.8 -17.6 -22.3	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686 .661 .641 .621	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -52.2 -54.4
VCE	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -52.2 -54.4 -56.1
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1	MAG .993 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -52.2 -54.4 -56.1 -57.9
VCE	MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -52.2 -54.4 -56.1
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.702 1.674 1.637	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7	MAG .993 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2300.00 2400.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -122.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .199 .200 .201	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7 -36.9 -40.5 -43.8	MAG .993 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437 .433	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8 -179.0	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571 1.520 1.488	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7 -21.7	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .198 .199 .200 .201 .201	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7 -36.9 -40.5 -43.8 -46.5	MAG .993 .983 .959 .942 .913 .889 .859 .829 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502 .490 .477	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437 .433 .430	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8 -179.0 174.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571 1.520 1.488 1.459	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7 -21.7 -27.8	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .198 .199 .200 .201 .201	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -30.1 -33.7 -36.9 -40.5 -43.8 -46.5 -49.3	MAG .993 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502 .490 .477 .466	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7 -70.0
Vce	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00 2600.00 2700.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437 .433 .430 .429	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8 -179.0 174.8 169.2	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571 1.520 1.488 1.459 1.425	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7 -21.7 -27.8 -33.7	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .198 .199 .200 .201 .201 .203 .204	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7 -36.9 -40.5 -43.8 -46.5 -49.3 -52.3	MAG .993 .983 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502 .490 .477 .466 .453	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7 -70.0 -72.4
Vce	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00 2600.00 2700.00 2800.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437 .433 .430 .429 .429	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8 -179.0 174.8 169.2 163.8	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571 1.520 1.488 1.459 1.425 1.390	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7 -21.7 -27.8 -33.7 -39.5	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .198 .199 .200 .201 .201 .203 .204 .206	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7 -36.9 -40.5 -43.8 -46.5 -49.3 -52.3 -55.1	MAG .993 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502 .490 .477 .466 .453 .443	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7 -67.7 -70.0 -72.4 -75.1
VCE	FREQUENCY MHz 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2100.00 2200.00 2300.00 2400.00 2500.00 2600.00 2700.00	MAG .983 .968 .952 .925 .904 .878 .844 .816 .782 .749 .709 .673 .639 .606 .578 .551 .526 .509 .487 .466 .454 .446 .437 .433 .430 .429	ANG -6.8 -14.0 -21.0 -28.5 -35.3 -41.8 -48.6 -55.6 -62.3 -69.9 -77.8 -85.8 -92.8 -100.6 -107.5 -114.6 -122.6 -129.5 -137.3 -145.4 -152.5 -159.2 -166.3 -172.8 -179.0 174.8 169.2	MAG 1.986 2.016 2.067 2.064 2.096 1.992 1.971 1.945 1.900 1.926 1.940 1.952 1.904 1.889 1.837 1.801 1.782 1.727 1.702 1.674 1.637 1.590 1.571 1.520 1.488 1.459 1.425	ANG 166.5 156.0 145.7 135.9 127.1 118.1 109.4 100.6 92.3 84.3 76.0 68.2 60.4 52.8 45.2 38.0 30.7 23.8 16.9 9.8 3.4 -3.1 -9.5 -15.7 -21.7 -27.8 -33.7	MAG .022 .044 .064 .083 .100 .116 .129 .141 .151 .159 .166 .172 .178 .182 .185 .189 .195 .196 .196 .198 .198 .199 .200 .201 .201 .203 .204	ANG 83.1 73.1 65.2 56.7 49.8 42.7 35.5 28.7 22.5 16.3 11.1 5.8 .8 -3.9 -8.9 -12.8 -17.6 -22.3 -26.3 -30.1 -33.7 -36.9 -40.5 -43.8 -46.5 -49.3 -52.3	MAG .993 .983 .983 .959 .942 .913 .889 .859 .795 .765 .736 .709 .686 .661 .641 .621 .603 .582 .562 .548 .530 .519 .502 .490 .477 .466 .453	ANG -4.6 -9.3 -13.6 -17.7 -21.6 -25.2 -28.5 -31.7 -34.8 -37.4 -39.7 -42.0 -44.2 -46.3 -48.2 -50.2 -54.4 -56.1 -57.9 -59.6 -61.7 -63.5 -65.7 -70.0 -72.4

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