

CUTTING CHARTS

BNCQ

Operating Freq.	Inches	Cm
VHF		
136 MHz	20	50.8
140 MHz	19	48.3
146 MHz	18	45.7
150 MHz	17 5/8	44.8
156 MHz	17	43.2
160 MHz	16 1/2	41.9
165 MHz	15 3/4	40.0
170 MHz	15	38.1
175 MHz	14 7/8	37.8
180 MHz	14 5/8	37.1
185 MHz	14 1/2	36.8
190 MHz	14	35.6
195 MHz	13 5/8	34.6
200 MHz	13	33.0
205 MHz	12 7/8	32.7
210 MHz	12 3/4	32.4
215 MHz	12 5/8	32.1
220 MHz	12 1/2	31.8
225 MHz	11 7/8	30.2
UHF		
405 MHz	6 1/4	15.9
420 MHz	6 1/8	15.6
430 MHz	6	15.2
440 MHz	5 7/8	14.9
450 MHz	5 3/4	14.6
460 MHz	5 1/2	14.0
470 MHz	5 1/4	13.3
480 MHz	5 1/8	13.0
490 MHz	5	12.7
500 MHz	4 7/8	12.4

BSA SERIES

BSA150C / BSA150B (using PO mount antenna)

Operating Freq.	Inches (w/o spring)	Cm
142 MHz	49	124.5
148 MHz	47 1/2	120.7
152 MHz	46 1/2	118.1
156 MHz	44	111.8
160 MHz	42 1/2	108.0
164 MHz	41	104.1
168 MHz	39 1/2	100.3
174 MHz	38	96.5

BSA406C (USING PO MOUNT ANTENNA)

Operating Freq.	Inches (w/o spring)	Cm
406 MHz	10	25.4
410 MHz	9 1/4	23.5
415 MHz	8 3/4	22.2
420 MHz	8 1/4	21.0

BSA420C (USING PO MOUNT ANTENNA)

Operating Freq.	Inches (w/o spring)	Cm
420 MHz	10	25.4
425 MHz	9 3/8	23.8
430 MHz	8 7/8	22.5
435 MHz	8 1/4	21.0
440 MHz	7 7/8	20.0

BSA440C (using PO mount antenna)

Operating Freq.	Inches (w/o spring)	Cm
440 MHz	10 1/4	26.0
445 MHz	9 3/4	24.8
450 MHz	9 1/8	23.2
455 MHz	8 3/4	22.2
460 MHz	8 3/8	21.3

BSA450C (using PO antenna)

Operating Freq.	Inches (w/o spring)	Cm
450 MHz	9 3/4	24.8
455 MHz	9 1/4	23.5
460 MHz	8 3/4	22.2
465 MHz	8 1/4	21.0
470 MHz	8	20.3

BSA470C (using PO antenna)

Operating Freq.	Inches (w/o spring)	Cm
470 MHz	9	22.9
475 MHz	8 1/4	21.0
480 MHz	7 3/4	19.7
485 MHz	7 1/2	19.1
490 MHz	7 1/8	18.1

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BSA490C (using PO antenna)

Operating Freq.	Inches (w/o spring)	Cm
490 MHz	7 1/2	19.1
495 MHz	7 1/8	18.1
500 MHz	6 7/8	17.5
505 MHz	6 1/2	16.5
512 MHz	6 1/8	15.6

FB2450

Operating Freq.	Inches	cm
450 MHz	7	17.8
455 MHz	6 3/4	17.1
460 MHz	6 1/2	16.5
465 MHz	6 1/4	15.9
470 MHz	6	15.2

FB SERIES

FB1136

Operating Freq.	Lower Rod Sect (In)	Phasing Rod (In)	Top Rod Sect (In)
1136 MHz	40	8	54
138 MHz	39 1/2	7 3/4	53
140 MHz	39 1/4	7 5/8	51
144 MHz	39 1/16	7 9/16	47 7/8
148MHz	37 15/16	7 5/16	46 9/16
152MHz	36 15/16	7 1/16	45 3/8
156 MHz	36 1/16	6 13/16	44 3/16
160 MHz	35 1/16	6 1/4	43
164 MHz	34 1/8	6	42
168 MHz	33 9/16	5 3/8	40 1/2
172 MHz	32 3/4	5 1/8	40
176 MHz	32 1/8	5	39 3/16
180 MHz	31 3/16	4 7/8	38
184 MHz	30 1/2	4 3/4	37 7/16
188 MHz	29 3/4	4 1/2	36 5/8
192 MHz	29 1/4	4	35 7/8
196 MHz	28 3/4	3 3/4	35
200 MHz	27 3/4	3 5/8	34 1/4
204 MHz	27 1/2	3 1/2	33 3/4
208 MHz	26 1/2	3 3/8	33
212 MHz	26 1/4	3	32
216 MHz	25 1/4	2 7/8	31 1/8
220 MHz	25 1/8	2 3/4	30 3/4
224 MHz	25	2 5/8	30 1/2
228 MHz	24 3/4	2 1/4	29 3/4
232 MHz	24 1/4	2	29 1/4

FB2406

Operating Freq.	Inches	cm
406 MHz	8 7/8	22.5
408 MHz	8 5/8	21.9
410 MHz	8 3/8	21.3
415 MHz	8	20.3
420 MHz	7 9/16	19.2

KG SERIES

KG144

Operating Freq.	Inches	Cm
144-148 MHz	Factory Pretuned	
148-152 MHz	39 1/2	100.3
152-156 MHz	35	88.9
156-159 MHz	32 1/2	82.6

KG160

Operating Freq.	Inches	Cm
160-163 MHz	Factory Pretuned	
163-167 MHz	34 1/2	87.6
167-170 MHz	32 1/2	82.6
170-174 MHz	30	76.2
172-176 MHz	28	71.1

KG440

Operating Freq.	Inches	Cm
440-450 MHz	Factory Pretuned	
450-460 MHz	9 1/2	24.1

KG450

Operating Freq.	Inches	Cm
450-460 MHz	Factory Pretuned	
460-470 MHz	9 3/4	24.8

KG470

Operating Freq.	Inches	Cm
470-480 MHz	Factory Pretuned	
480-490 MHz	10	25.4



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LA SERIES

LA150C / LA150B / LA150U

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
144 MHz	49 3/8	125.4	47 3/4	121.3
146 MHz	49	124.5	47	119.4
148 MHz	48 1/4	122.6	45 3/4	116.2
150 MHz	47 3/4	121.3	44 3/4	113.7
152 MHz	47 1/4	120.0	44	111.8
154 MHz	46 1/4	117.5	43 1/2	110.5
156 MHz	45 1/2	115.6	42 1/2	108.0
158 MHz	44 3/4	113.7	41 1/2	105.4
160 MHz	44 1/4	112.4	40 3/4	103.5
162 MHz	43 1/2	110.5	40	101.6
164 MHz	42 3/4	108.6	39 1/2	100.3
166 MHz	42 1/4	107.3	38 3/4	98.4
168 MHz	41 1/2	105.4	38	96.5
170 MHz	40 1/2	102.9	37 1/4	94.6
172 MHz	40	101.6	36 3/4	93.3
174 MHz	39 1/2	100.3	35 3/4	90.8

LM SERIES

LM150C / LM150B

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
144 MHz	49	124.5	46 7/8	119.1
146 MHz	48 1/4	122.6	45 3/4	116.2
148 MHz	47 3/4	121.3	45	114.3
150 MHz	46 7/8	119.1	44	111.8
152 MHz	46 1/4	117.5	43 1/4	109.9
154 MHz	45 3/8	115.3	42 3/8	107.6
156 MHz	44 5/8	113.3	41 5/8	105.7
158 MHz	43 7/8	111.4	40 3/4	103.5
160 MHz	43 1/8	109.5	40	101.6
162 MHz	42 1/4	107.3	39 1/4	99.7
164 MHz	41 5/8	105.7	38 5/8	98.1
166 MHz	41 1/8	104.5	37 7/8	96.2
168 MHz	40 3/8	102.6	37 1/8	94.3
170 MHz	39 3/4	101.0	36 3/4	93.3
172 MHz	39 1/4	99.7	36 1/8	91.8
174 MHz	38 5/8	98.1	35 5/8	90.5

LM220C / LM220B

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
220 MHz	32	81.3	29	73.7
222 MHz	31 5/8	80.3	28 5/8	72.7
225 MHz	31 1/8	79.1	28	71.1
230 MHz	30	76.2	27 1/2	69.9

LM406C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
405 MHz	11 7/8	30.2	10 1/2	26.7
410 MHz	11 3/16	28.4	9 11/16	24.6
415 MHz	10 13/16	27.5	9	22.9
420 MHz	10 3/8	26.4	8 7/8	22.5

LM420C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
420 MHz	12 1/16	30.6	10 1/2	26.7
425 MHz	11 5/8	29.5	10 1/8	25.7
430 MHz	11	27.9	9 3/4	24.8
435 MHz	10 9/16	26.8	9 1/4	23.5
440 MHz	10 1/8	25.7	8 3/4	22.2

LM440C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
440 MHz	11 1/4	28.6	9 15/16	25.2
445 MHz	10 7/8	27.6	9 9/16	24.3
450 MHz	10 1/2	26.7	9 1/8	23.2
455 MHz	9 15/16	25.2	8 3/4	22.2
460 MHz	9 3/4	24.8	8 1/2	21.6

LM450C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
450 MHz	11 1/8	28.3	9 5/8	24.4
455 MHz	10 5/8	27.0	9 1/8	23.2
460 MHz	10 1/8	25.7	8 3/4	22.2
465 MHz	9 5/8	24.4	8 1/4	21.0
470 MHz	9 3/8	23.8	7 15/16	20.2

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LM470C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
470 MHz	10 1/2	26.7	9	22.9
475 MHz	10 1/8	25.7	8 11/16	22.1
480 MHz	9 3/4	24.8	8 5/16	21.1
485 MHz	9 3/8	23.8	8	20.3
490 MHz	9	22.9	7 5/8	19.4

LM490C

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
490 MHz	9 5/8	24.4	8 1/4	21.0
495 MHz	9 5/16	23.7	7 7/8	20.0
500 MHz	9	22.9	7 1/2	19.1
505 MHz	8 5/8	21.9	7 1/8	18.1
512 MHz	8 1/4	21.0	6 7/8	17.5

LM406B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
406 MHz	9 1/8	23.2
410 MHz	8 7/8	22.5
415 MHz	8 5/8	21.9
420 MHz	8 1/4	21.0

LM420B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
420 MHz	8 5/8	21.9
425 MHz	8 1/4	21.0
430 MHz	8	20.3
435 MHz	7 5/8	19.4
440 MHz	7 1/4	18.4

LM440B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
440 MHz	7 3/4	19.7
445 MHz	7 5/8	19.4
450 MHz	7 1/2	19.1
455 MHz	7 1/4	18.4
460 MHz	7 1/8	18.1

LM450B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
450 MHz	7 1/2	19.1
455 MHz	7 3/8	18.7
460 MHz	7 1/8	18.1
465 MHz	6 7/8	17.5
470 MHz	6 3/4	17.1

LM470B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
470 MHz	6 3/4	17.1
475 MHz	6 1/2	16.5
480 MHz	6 3/8	16.2
485 MHz	6 1/4	15.9
490 MHz	6 1/8	15.6

LM490B

Operating Freq.	Inches (lower rod)	Cm (lower rod)
490 MHz	6 1/4	15.9
495 MHz	6 1/8	15.6
500 MHz	5 7/8	14.9
505 MHz	5 3/4	14.6
512 MHz	5 1/2	14.0

LMC4060

Operating Freq.	Inches (lower rod)	Cm (lower rod)
405 MHz	11 7/8	30.2
410 MHz	11 3/8	28.9
415 MHz	11	27.9
420 MHz	10 1/2	26.7

LMC4200 (w/LA mount)

Operating Freq.	Inches	Cm
420 MHz	11 1/8	28.3
425 MHz	10 1/2	26.7
430 MHz	10	25.4
435 MHz	9 5/8	24.4
440 MHz	9 1/8	23.2

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LMC4200 (w/ LM mount)

Operating Freq.	Inches (lower rod)	Cm (lower rod)
420 MHz	11 5/8	29.5
425 MHz	11 1/8	28.3
430 MHz	10 5/8	27.0
435 MHz	10 3/8	26.4
440 MHz	10	25.4

LMC4400 (w/LA mount)

Operating Freq.	Cm		Inches	
	Inches w/o spring		w/ spring	
440 MHz	11 3/8	28.9	9 3/8	23.8
445 MHz	10 3/4	27.3	9 1/8	23.2
450 MHz	10 3/8	26.4	8 5/8	21.9
455 MHz	10	25.4	8 1/8	20.6
460 MHz	9 3/8	23.8	7 3/4	19.7

LMC4500 (w/LA mount)

Operating Freq.	Cm		Inches	
	Inches w/o spring		w/ spring	
450 MHz	10	25.4	8 3/8	21.3
455 MHz	9 1/2	24.1	7 3/4	19.7
460 MHz	9 1/8	23.2	7 1/4	18.4
465 MHz	8 1/2	21.6	6 3/4	17.1
470 MHz	8 1/8	20.6	6 3/8	16.2

LMC4500 (w/ LM mount)

Operating Freq.	Inches (lower rod)	Cm (lower rod)
450 MHz	11	27.9
455 MHz	10 1/2	26.7
460 MHz	10 1/8	25.7
465 MHz	9 3/4	24.8
470 MHz	9 3/8	23.8

LMC4700 (w/LA mount)

Operating Freq.	Inches	Cm
470 MHz	9 1/2	24.1
475 MHz	9 1/4	23.5
480 MHz	9	22.9
485 MHz	8 3/4	22.2
490 MHz	8 1/4	21.0

LMC4700 (w/ LM mount)

Operating Freq.	Inches (lower rod)	Cm (lower rod)
470 MHz	10 1/8	25.7
475 MHz	9 3/4	24.8
480 MHz	9 3/8	23.8
485 MHz	9	22.9
490 MHz	8 5/8	21.9

LMC4900 (w/LA mount)

Operating Freq.	Inches	Cm
490 MHz	8 1/2	21.6
495 MHz	8 1/4	21.0
500 MHz	8	20.3
505 MHz	7 5/8	19.4
512 MHz	7 3/8	18.7

LMC4900 (w/ LM mount)

Operating Freq.	Inches (lower rod)	Cm (lower rod)
490 MHz	9 1/2	24.1
495 MHz	9 1/8	23.2
500 MHz	8 7/8	22.5
505 MHz	8 5/8	21.9
512 MHz	8 1/8	20.6

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MHW/PHW SERIES

MHW / PHW150C

Operating Freq.	Inches	Cm
144MHz	43 1/2	110.5
146 MHz	42 1/4	107.3
148 MHz	41	104.1
150 MHz	39 3/4	101.0
152 MHz	38 1/2	97.8
154 MHz	37 1/4	94.6
156 MHz	36 1/4	92.1
158 MHz	35 3/8	89.9
160 MHz	34 1/2	87.6
162 MHz	33 3/4	85.7
164 MHz	33 1/8	84.1
166 MHz	32 3/8	82.2
168 MHz	30 7/8	78.4
170 MHz	30 1/8	76.5
172 MHz	29 7/8	75.9
174 MHz	29 5/8	75.2

MM/MS SERIES

MSTFME

Operating Freq.	Inches	Cm
VHF		
144 MHz	19 3/8	49.2
146 MHz	19 1/8	48.5
148 MHz	18 7/8	47.9
150 MHz	18 3/8	46.6
152 MHz	18	45.7
154 MHz	17 5/8	44.7
156 MHz	17 1/2	44.4
158 MHz	17 1/8	43.4
160 MHz	16 7/8	42.8
162 MHz	16 3/4	42.5
164 MHz	16 5/8	42.2
166 MHz	16 3/8	41.6
168 MHz	16 1/4	41.2
170 MHz	16 1/8	40.9
172 MHz	16	40.6
174 MHz	15 7/8	40.3
220		
220-225 MHz	12 1/16	30.6

MSTFME

(CONT.)

Operating Freq.	Inches	Cm
UHF		
406 MHz	6 1/4	15.8
410 MHz	5 1/2	13.9
430 MHz	5 1/4	13.3
440 MHz	5 1/8	13
450 MHz	4 15/16	12.5
460 MHz	4 7/8	12.3
470 MHz	4 3/4	12
480 MHz	4 5/8	11.7
490 MHz	4 1/2	11.4
500 MHz	4 3/8	11.1
512 MHz	4 1/4	10.8
800		
806-896 MHz	2 1/2	6.3
900		
890-965 MHz	2 1/8	5.3

NMO SERIES ANTENNAS

NMO27C / NMO27B ROOF MOUNT

Operating Freq.	Inches		cm	
	w/o spring	w/spring	Inches	cm
27.0 MHz	47	119.38	46 1/4	117.48
27.5 MHz	45 1/4	114.93	44 3/8	112.71
28.0 MHz	44 1/8	112.08	42 5/8	108.27
28.5 MHz	42 3/4	108.58	40 7/8	103.82
29.0 MHz	41 1/4	104.78	39 1/4	99.70
29.5 MHz	39 3/4	100.96	37 1/2	95.25
30.0 MHz	37 3/4	95.88	35 15/16	91.28

NMO27C / NMO27B TMB MOUNT, HOOD/TRUNK

Operating Freq.	Inches		cm	
	w/o spring	w/spring	Inches	cm
27.0 MHz	47 1/2	120.65	45 3/16	114.78
27.5 MHz	45 3/4	116.20	43 7/16	110.33
28.0 MHz	44 1/8	112.08	41 5/8	105.73
28.5 MHz	42 3/16	107.16	40	101.60
29.0 MHz	40 3/4	103.50	38 5/16	97.31
29.5 MHz	39	99.06	36 3/4	93.35
30.0 MHz	37 5/16	94.77	35 1/4	89.54



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NMO30C / NMO30B ROOF MOUNT

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
30.0 MHz	51 9/16	130.97	48 1/2	123.19
31.0 MHz	47 1/2	120.65	45 1/4	114.94
32.0 MHz	44 1/2	113.03	41 13/16	106.20
33.0 MHz	41 1/2	105.41	39	99.06
34.0 MHz	38 3/4	98.43	36 3/8	92.39
35.0 MHz	36 3/8	92.39	33 13/16	85.88

NMO30C / NMO30B TMB MOUNT, HOOD/TRUNK

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
30.0 MHz	49 1/8	124.78	46 15/16	119.22
31.0 MHz	45 15/16	116.68	43	109.22
32.0 MHz	42 1/2	107.95	40 9/16	103.03
33.0 MHz	39 15/16	101.44	37 5/8	95.57
34.0 MHz	37 3/8	94.93	34 5/8	87.95
35.0 MHz	35 1/4	89.54	32 3/4	83.19

NMO34C / NMO34B ROOF MOUNT

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
34.0 MHz	52	132.08	49 7/8	126.68
35.0 MHz	49 1/4	125.10	46 7/16	117.95
36.0 MHz	46 1/8	117.16	43 5/8	110.81
37.0 MHz	43 1/2	110.49	41 1/4	104.788
38.0 MHz	41 1/8	104.46	39	99.066
39.0 MHz	38 7/8	98.74	36 11/16	93.19
40.0 MHz	36 7/8	93.66	34 5/8	87.95

NMO34C / NMO34B TMB MOUNT, ROOF/TRUNK

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
34.0 MHz	48 1/4	122.56	46 3/8	117.79
35.0 MHz	46 1/16	117.00	43 7/8	111.44
36.0 MHz	43 5/8	110.81	41 9/16	105.57
37.0 MHz	41 1/4	104.78	39 1/8	99.38
38.0 MHz	39 1/8	99.38	36 7/8	93.66
39.0 MHz	37 15/16	96.36	35	88.90
40.0 MHz	35 3/16	89.38	32 3/4	83.18

NMOWB40C

Low Frequency	High Frequency	Inches	cm
40	45	60 7/8	154.60
42	48	57 5/16	145.50
43.65	50	54 9/16	138.60

NMO40C / NMO40B ROOF MOUNT

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
40.0 MHz	52	132.08	50 3/8	127.95
42.0 MHz	48 1/8	122.24	46 3/16	117.32
44.0 MHz	44	111.76	42 1/2	107.95
46.0 MHz	40 1/2	102.87	38 5/8	98.11
48.0 MHz	37 7/16	95.09	35 5/16	89.69
50.0 MHz	34 5/8	87.95	33 5/8	85.41

NMO40C / NMO40B TMB MOUNT, ROOF/TRUNK

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
40.0 MHz	48 7/8	124.14	47	119.38
42.0 MHz	44 1/4	112.40	42 5/8	108.27
44.0 MHz	40 3/4	103.51	38 13/16	98.58
46.0 MHz	38 1/4	97.16	36	91.44
48.0 MHz	36	91.44	34 1/4	87.00
50.0 MHz	32 3/8	82.23	31 1/2	80.01

NMO50C / NMO50B ROOF MOUNT

Operating Freq.	Inches		cm	
	w/o spring		w/springl	
47.0 MHz	49 3/4	126.37	48 1/8	122.24
48.0 MHz	48 1/8	122.24	46 5/8	118.43
49.0 MHz	47	119.38	45 1/4	114.94
50.0 MHz	45 5/8	115.89	44 1/16	111.92
51.0 MHz	43 3/4	111.13	42 3/16	107.16
52.0 MHz	42 9/16	108.11	41	104.14
53.0 MHz	41 1/4	104.78	40	101.60
54.0 MHz	40 1/2	102.87	38 15/16	98.90

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NMO50C / NMO50B TMB MOUNT, ROOF/ TRUNK

Operating Freq.	Inches		cm	
	w/o spring		w/spring!	
47.0 MHz	46 3/8	117.79	44 7/8	113.98
48.0 MHz	45 1/2	115.57	44 1/2	113.03
49.0 MHz	45	114.30	43 7/8	111.44
50.0 MHz	44 1/16	111.92	42 5/8	108.27
51.0 MHz	43	109.22	41 1/4	104.78
52.0 MHz	41 7/8	106.36	39 1/2	100.33
53.0 MHz	40	101.60	38 1/4	97.16
54.0 MHz	39	99.06	37 1/8	94.30

NMOQ52

Operating Freq.	Inches	Cm
52 MHz	54 1/2	138.4
54 MHz	53	134.6
56 MHz	52	132.1
58 MHz	51	129.5
60 MHz	49 1/2	125.7
62 MHz	47	119.4
64 MHz	45 1/2	115.6
66 MHz	44 1/4	112.4
68 MHz	43 1/2	110.5
70 MHz	42 1/4	107.3
72 MHz	41	104.1
74 MHz	40	101.6
76 MHz	39	99.1
78 MHz	38	96.5
80 MHz	37	94.0
82 MHz	36	91.4
84 MHz	35	88.9
86 MHz	34	86.4
88 MHz	33	83.8

NMOQ88

Operating Freq.	Inches	Cm
88 MHz	33	83.8
90 MHz	32 1/4	81.9
92 MHz	31 1/2	80.0
94 MHz	30 1/2	77.5
96 MHz	29 1/2	74.9
98 MHz	29	73.7
100 MHz	28 1/2	72.4
102 MHz	27 1/2	69.9
104 MHz	26 3/4	67.9
106 MHz	26	66.0
108 MHz	25 3/4	65.4
110 MHz	25 3/8	64.5
112 MHz	25	63.5
114 MHz	24 1/2	62.2
116 MHz	24 1/4	61.6
118 MHz	24	61.0
120 MHz	23 1/2	59.7
122 MHz	23	58.4
124 MHz	22 1/2	57.2
126 MHz	22	55.9
128 MHz	21 3/4	55.2
130 MHz	21 1/4	54.0
132 MHz	21	53.3
134 MHz	20 3/4	52.7
136 MHz	20	50.8



CUTTING CHARTS

NMOQSPEC

Operating Freq.	Inches	Cm
VHF		
136 MHz	21	53.3
140 MHz	20	50.8
145 MHz	19 3/4	50.2
150 MHz	19 1/4	48.9
155 MHz	18 3/8	46.7
160 MHz	18	45.7
165 MHz	17 1/2	44.5
170 MHz	16 15/16	43.0
178 MHz	16 1/8	41.0
200 MHz	14 3/8	36.5
205 MHz	13 3/4	34.9
215 MHz	13 1/4	33.7
225 MHz	13	33.0
UHF		
405 MHz	7	17.8
415 MHz	6 3/4	17.1
425 MHz	6 5/8	16.8
435 MHz	6 1/2	16.5
440 MHz	6 7/16	16.4
444 MHz	6 3/8	16.2
446 MHz	6 5/16	16.0
448 MHz	6 1/4	15.9
450 MHz	6 1/8	15.6
460 MHz	6	15.2
470 MHz	5 7/8	14.9
480 MHz	5 3/4	14.6
490 MHz	5 5/8	14.3
500 MHz	5 1/2	14.0
515 MHz	5 3/8	13.7

NMOQC / NMOQB

Operating Freq.	Inches	Cm
VHF		
130 MHz	20 1/2	52.1
135 MHz	20	50.8
140 MHz	19 1/8	48.6
145 MHz	18 5/8	47.3
150 MHz	18 1/4	46.4
155 MHz	17 1/4	43.8
160 MHz	16 5/8	42.2
165 MHz	16 3/8	41.6
170 MHz	15 5/8	39.7
175 MHz	15	38.1
210 MHz	12 5/8	32.1
215 MHz	12 1/8	30.8
220 MHz	11 7/8	30.2
225 MHz	11 5/8	29.5
230 MHz	11 1/8	28.3
UHF		
400 MHz	6	15.2
410 MHz	5 7/8	14.9
420 MHz	5 3/4	14.6
430 MHz	5 11/16	14.4
440 MHz	5 5/8	14.3
450 MHz	5 1/2	14.0
460 MHz	5 1/4	13.3
470 MHz	5 1/8	13.0
480 MHz	5	12.7
490 MHz	4 7/8	12.4
500 MHz	4 3/4	12.1

NMOQWFT

Freq. Range	Center Freq.	Length
136-144 MHz	140 MHz	19 3/4"
162-174 MHz	168 MHz	16 9/16"
152-162 MHz	157 MHz	17 3/4"
162-174 MHz	168 MHz	16 9/16"
220-225 MHz	222.5 MHz	12 7/16"
406-430 MHz	418 MHz	6 9/16"
430-450 MHz	440 MHz	6 1/4"
450-470 MHz	460 MHz	5 15/16"
470-490 MHz	480 MHz	5 11/16"
490-512 MHz	500 MHz	5 1/2"
806-896 MHz	850 MHz	3 1/4"
890-970 MHz	930 MHz	2 15/16"

CUTTING CHARTS

NMO150C / NMO150B

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
144 MHz	49	124.5	46	116.8
146 MHz	48	121.9	45 1/4	114.9
148 MHz	47	119.4	44 1/4	112.4
150 MHz	46 1/4	117.5	43 1/4	109.9
152 MHz	45 1/2	115.6	42 1/2	108.0
154 MHz	44 3/4	113.7	41 7/8	106.4
156 MHz	44 1/4	112.4	40 1/4	102.2
158 MHz	43 3/8	110.2	40 1/8	101.9
160 MHz	42 3/4	108.6	39 5/8	100.6
162 MHz	41 7/8	106.4	38 7/8	98.7
164 MHz	41 1/4	104.8	38	96.5
166 MHz	40 5/8	103.2	37	94.0
168 MHz	40	101.6	36 5/8	93.0
170 MHz	39 1/4	99.7	36	91.4
172 MHz	38 3/4	98.4	35 1/4	89.5
174 MHz	38	96.5	34 5/8	87.9

NMOWB150 SERIES

Oper. Freq. 2.0:1 VSWR	Oper. Freq. 1.5:1 VSWR	Inches	cm
135 MHz - 151 MHz	139 MHz - 145 MHz	40 1/2	102.9
143 MHz - 163 MHz	147 MHz - 159 MHz	37 3/8	94.8
147 MHz - 168 MHz	152 MHz - 160 MHz	36 1/2	92.7
152 MHz - 174 MHz	158 MHz - 170 MHz	34 1/2	87.6

NMO150CHW / NMO150BHW

Operating Freq.	Inches	Cm
144 MHz	41 3/8	105.1
146 MHz	40 1/8	101.9
148 MHz	39 1/8	99.4
150 MHz	38 1/8	96.8
152 MHz	37 1/8	94.3
154 MHz	36 1/8	91.8
156 MHz	35 1/8	89.2
158 MHz	34 1/4	87.0
160 MHz	33 3/8	84.8
162 MHz	32 1/4	81.9
164 MHz	31 1/8	79.1
166 MHz	30 3/8	77.2
168 MHz	30	76.2
170 MHz	29 3/4	75.6
172 MHz	28 7/8	73.3
174 MHz	28 3/8	72.1

NMO220C / NMO220B

Operating Freq.	Inches w/o spring	Cm	Inches w/ spring	Cm
220 MHz	32	81.3	29 1/8	74.0
225 MHz	31	78.7	28	71.1
230 MHz	30 1/8	76.5	27	68.6
235 MHz	29 1/4	74.3	26 1/4	66.7
240 MHz	28 1/4	71.8	25 1/4	64.1

NMO220CHW / NMO220BHW

Operating Freq.	Inches	Cm
215 MHz	25 1/8	63.8
220 MHz	24 3/8	61.9
225 MHz	23 1/2	59.7
230 MHz	22 3/4	57.8
235 MHz	21 5/8	54.9

NMO4505/8C

Operating Freq.	Inches	Cm
406 MHz	16	40.6
410 MHz	15 3/4	40.0
415 MHz	15 3/8	39.1
420 MHz	14 7/8	37.8
425 MHz	14 3/4	37.5
430 MHz	14 1/2	36.8
435 MHz	14 3/16	36.0
440 MHz	13 7/8	35.2
445 MHz	13 5/8	34.6
450 MHz	13 7/16	34.1
455 MHz	13 1/16	33.2
460 MHz	12 3/4	32.4
465 MHz	12 1/2	31.8
470 MHz	12 1/4	31.1
475 MHz	12 1/4	31.1
480 MHz	12 1/8	30.8
485 MHz	11 5/8	29.5
490 MHz	11 5/16	28.7
495 MHz	11 3/16	28.4
500 MHz	10 15/16	27.8
512 MHz	10 5/8	27.0



CUTTING CHARTS

NMO406C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
405 MHz	11 7/8	30.2	10 1/4	26.0
410 MHz	11 1/8	28.3	10	25.4
415 MHz	10 5/8	27.0	9 7/16	24.0
420 MHz	10 3/16	25.9	8 5/8	21.9

NMO420C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
420 MHz	12 1/16	30.6	10 5/8	27.0
425 MHz	11 3/4	29.8	9 7/8	25.1
430 MHz	11	27.9	9 1/4	23.5
435 MHz	10 9/16	26.8	9 1/16	23.0
440 MHz	10 1/4	26.0	8 5/8	21.9

NMO440C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
440 MHz	11 3/8	28.9	9 11/16	24.6
445 MHz	11	27.9	9 3/8	23.8
450 MHz	10 1/2	26.7	8 13/16	22.4
455 MHz	10 1/16	25.6	8 1/4	21.0
460 MHz	9 3/4	24.8	8 1/8	20.6

NMO450C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
450 MHz	11 1/8	28.3	9 1/4	23.5
455 MHz	10 5/8	27.0	8 3/4	22.2
460 MHz	10 3/16	25.9	8 1/2	21.6
465 MHz	9 7/8	25.1	8 1/4	21.0
470 MHz	9 7/16	24.0	7 13/16	19.8

NMO470C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
470 MHz	10 1/2	26.7	9	22.9
475 MHz	10 1/8	25.7	8 1/2	21.6
480 MHz	9 7/16	24.0	8 1/8	20.6
485 MHz	9 1/2	24.1	7 15/16	20.2
490 MHz	9 1/4	23.5	7 1/2	19.1

NMO490C

Operating Freq.	Inches	Cm	Inches	Cm
	Lower rod w/o spring		Lower rod w/ spring	
490 MHz	9 7/8	25.1	8 1/8	20.6
495 MHz	9 1/2	24.1	7 5/8	19.4
500 MHz	9 1/4	23.5	7 1/4	18.4
505 MHz	8 3/4	22.2	6 7/8	17.5
512 MHz	8 1/2	21.6	6 3/4	17.1

NMO406B

Operating Freq.	Inches	Cm
405 MHz	9 1/8	23.2
410 MHz	8 7/8	22.5
415 MHz	8 1/2	21.6
420 MHz	8 1/4	21.0

NMO420B

Operating Freq.	Inches	Cm
420 MHz	8 1/2	21.6
425 MHz	8 3/8	21.3
430 MHz	8	20.3
435 MHz	7 3/4	19.7
440 MHz	7 1/2	19.1

NMO440B

Operating Freq.	Inches	Cm
440 MHz	7 3/4	19.7
445 MHz	7 1/2	19.1
450 MHz	7 1/4	18.4
455 MHz	7	17.8
460 MHz	6 3/4	17.1

NMO450B

Operating Freq.	Inches	Cm
450 MHz	7 1/2	19.1
455 MHz	7 3/8	18.7
460 MHz	7 1/8	18.1
465 MHz	6 7/8	17.5
470 MHz	6 3/4	17.1

CUTTING CHARTS

NMO470B

Operating Freq.	Inches	Cm
470 MHz	7	17.8
475 MHz	6 1/2	16.5
480 MHz	6 3/8	16.2
485 MHz	6 1/4	15.9
490 MHz	6	15.2

NMO490B

Operating Freq.	Inches	Cm
490 MHz	6 1/4	15.9
495 MHz	6	15.2
500 MHz	5 7/8	14.9
505 MHz	5 3/4	14.6
512 MHz	5 5/8	14.3

NMOWB406 SERIES

Operating Freq. 1.5:1 VSWR	Inches	Cm
406 MHz - 430 MHz	12 1/4	31.1
420 MHz - 445 MHz	10 13/16	27.5
440 MHz - 465 MHz	9	22.9
450 MHz - 470 MHz	8 7/16	21.4
465 MHz - 490 MHz	7 7/8	20.0
485 MHz - 512 MHz	6 3/8	16.2

Operating Freq. 2.0:1 VSWR	Inches	Cm
406 MHz - 470 MHz	10 1/8	25.7
460 MHz - 512 MHz	6 7/8	17.5

NMO406CHW

Operating Freq.	Inches	Cm
406 MHz	16 3/4	42.5
410 MHz	16	40.6
415 MHz	15 3/4	40.0
420 MHz	15 1/2	39.4

NMO420CHW

Operating Freq.	Inches	Cm
420 MHz	16	40.6
425 MHz	15 3/4	40.0
430 MHz	15	38.1
435 MHz	14 1/2	36.8
440 MHz	14	35.6

NMO440CHW

Operating Freq.	Inches	Cm
440 MHz	15 1/4	38.7
445 MHz	14 1/2	36.8
450 MHz	14	35.6

NMO450CHW

Operating Freq.	Inches	Cm
450 MHz	15	38.1
455 MHz	14 1/2	36.8
460 MHz	13 3/4	34.9
465 MHz	13 3/8	34.0
470 MHz	13	33.0

NMO470CHW

Operating Freq.	Inches	Cm
470 MHz	12 3/4	32.4
475 MHz	12 1/4	31.1
480 MHz	11 3/4	29.8
485 MHz	11 1/4	28.6

NMO490CHW

Operating Freq.	Inches	Cm
490 MHz	12 1/2	31.8
495 MHz	12	30.5
500 MHz	11 5/8	29.5
505 MHz	11 1/8	28.3



CUTTING CHARTS

OM SERIES

OM150CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
147 MHz	43	109.2	39 1/2	100.3
150 MHz	41	104.1	37 1/2	95.3
152 MHz	40	101.6	36 1/2	92.7
155 MHz	39	99.1	35 1/2	90.2
157 MHz	38	96.5	34 1/2	87.6
160 MHz	36	91.4	32 1/2	82.6
162 MHz	35	88.9	31 1/2	80.0
165 MHz	34 1/2	87.6	31	78.7
167 MHz	34	86.4	30 1/2	77.5
170 MHz	33	83.8	29 1/2	74.9
172 MHz	32	81.3	28 1/2	72.4

OM406CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
404 MHz	17	43.2	14 3/4	37.5
406 MHz	16 3/4	42.5	14 1/2	36.8
408 MHz	16 1/2	41.9	14 1/4	36.2
410 MHz	16	40.6	13 3/4	34.9
415 MHz	15 3/4	40.0	13 1/2	34.3
420 MHz	15 1/2	39.4	13 1/4	33.7

OM420CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
420 MHz	16	40.6	13 3/4	34.9
425 MHz	15 3/4	40.0	13 1/2	34.3
430 MHz	15	38.1	12 3/4	32.4
435 MHz	14 1/2	36.8	12 1/4	31.1
440 MHz	14	35.6	11 3/4	29.8

OM440CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
440 MHz	15 1/2	39.4	13 1/4	33.7
445 MHz	15	38.1	12 3/4	32.4
450 MHz	14 1/2	36.8	12 1/4	31.1

OM450CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
450 MHz	15	38.1	13 1/2	34.3
455 MHz	14 1/2	36.8	12 1/2	31.8
460 MHz	13 3/4	34.9	11 3/4	29.8
465 MHz	13 3/8	34.0	11 3/8	28.9
470 MHz	13	33.0	11	27.9

OM470CK

OPERATING FREQUENCY	ROD LENGTH W/O SPRING (In)	ROD LENGTH W/O SPRING (cm)	ROD LENGTH W/ SPRING (In)	ROD LENGTH W/ SPRING (cm)
470 MHz	12 3/4	32.4	10 1/2	26.7
475 MHz	12 1/4	31.1	10	25.4
480 MHz	11 3/4	29.8	9 1/2	24.1
485 MHz	11 1/4	28.6	9	22.9

OM490CK

Operating Frequency	Rod Length w/o Spring (In)	Rod Length w/o Spring (cm)	Rod Length w/Spring (In)	Rod Length w/Spring (cm)
490 MHz	12 1/2	31.8	10 1/4	26.0
495 MHz	12	30.5	9 3/4	24.8
500 MHz	11 5/8	29.5	9 3/8	23.8
505 MHz	11 1/8	28.3	8 7/8	22.5

PHW SERIES

See MHW/PHW Series

PO SERIES

PO150C / PO150B / PO150U

Operating Freq.	Inches	Cm
142 MHz	49	124.5
148 MHz	47 1/2	120.7
152 MHz	46	116.8
156 MHz	44 1/4	112.4
160 MHz	42 1/2	108.0
164 MHz	41 1/4	104.8
168 MHz	40 1/8	101.9
174 MHz	38 1/2	97.8

CUTTING CHARTS

PO406C

Operating Freq.	Inches	Cm
406 MHz	10	25.4
410 MHz	9 1/4	23.5
415 MHz	8 3/4	22.2
420 MHz	8 1/4	21.0

PO 420C

Operating Freq.	Inches	Cm
420 MHz	10	24.5
425 MHz	9 3/8	23.0
430 MHz	8 7/8	21.7
435 MHz	8 1/4	20.2
440 MHz	7 7/8	19.3

PO440C

Operating Freq.	Inches	Cm
440 MHz	10 1/4	26.0
445 MHz	9 3/4	24.8
450 MHz	9 1/8	23.2
455 MHz	8 3/4	22.2
460 MHz	8 3/8	21.3

PO450C

Operating Freq.	Inches	Cm
450 MHz	9 3/4	24.8
455 MHz	9 1/4	23.5
460 MHz	8 3/4	22.2
465 MHz	8 1/4	21.0
470 MHz	8	20.3

PO470C

Operating Freq.	Inches	Cm
470 MHz	9	22.9
475 MHz	8 1/4	21.0
480 MHz	7 3/4	19.7
485 MHz	7 1/2	19.1
490 MHz	7 1/8	18.1

PO490C

Operating Freq.	Inches	Cm
490 MHz	7-1/2	19.1
495 MHz	7-1/8	18.1
500 MHz	6-7/8	17.5
505 MHz	6-1/2	16.5
512 MHz	6-1/8	15.6

PQ

Operating Freq.	Inches	cm
VHF		
136 MHz	20	50.8
140 MHz	19	48.3
146 MHz	18	45.7
150 MHz	17 5/8	44.8
156 MHz	17	43.2
160 MHz	16 1/2	41.9
165 MHz	15 3/4	40.0
170 MHz	15	38.1
175 MHz	14 7/8	37.8
180 MHz	14 5/8	37.1
185 MHz	14 1/2	36.8
190 MHz	14	35.6
195 MHz	13 5/8	34.6
200 MHz	13	33.0
205 MHz	12 7/8	32.7
210 MHz	12 3/4	32.4
215 MHz	12 5/8	32.1
220 MHz	12 1/2	31.8
225 MHz	11 7/8	30.2

UHF

405 MHz	6 1/4	15.9
420 MHz	6 1/8	15.6
430 MHz	6	15.2
440 MHz	5 7/8	14.9
450 MHz	5 3/4	14.6
460 MHz	5 1/2	14.0
470 MHz	5 1/4	13.3
480 MHz	5 1/8	13.0
490 MHz	5	12.7
500 MHz	4 7/8	12.4
520 MHz	4 3/4	12.1



CUTTING CHARTS

Q SERIES

Q (LA MOUNT)

Operating Freq.	Inches	cm
VHF		
136 MHz	19 7/8	50.5
140 MHz	19 1/2	49.5
144 MHz	18 7/8	47.9
150 MHz	17 3/4	45.1
155 MHz	17 1/8	43.5
158 MHz	16 7/8	42.9
161 MHz	16 5/8	42.2
164 MHz	16 3/8	41.6
168 MHz	16	40.6
172 MHz	15 3/4	40.0
176 MHz	15 1/4	38.7

UHF

400 MHz	6	15.2
410 MHz	5 3/4	14.6
420 MHz	5 1/2	14.0
430 MHz	5 3/8	13.7
440 MHz	5 1/4	13.3
450 MHz	4 7/8	12.4
460 MHz	4 3/4	12.1
470 MHz	4 1/2	11.4
480 MHz	4 3/8	11.1
490 MHz	4 1/4	10.8
500 MHz	4	10.2

Q (LM mount)

Operating Freq.	Inches	cm
VHF		
140 MHz	20	50.8
144 MHz	19 3/4	50.2
150 MHz	19	48.3
155 MHz	18 3/4	47.6
158 MHz	18 3/8	46.7
161 MHz	18 1/8	46.0
164 MHz	17 5/8	44.8
168 MHz	17	43.2
172 MHz	16 3/4	42.5
176 MHz	16 1/4	41.3
220 MHz	12 1/4	31.1
222 MHz	12	30.5
225 MHz	11 13/16	30.0

UHF

400 MHz	6 7/8	17.5
410 MHz	6 1/2	16.5
420 MHz	6 3/8	16.2
430 MHz	6 1/4	15.9
440 MHz	6	15.2
450 MHz	5 3/4	14.6
460 MHz	5 9/16	14.1
470 MHz	5	12.7
480 MHz	4 7/8	12.4
490 MHz	4 3/4	12.1
500 MHz	4 5/8	11.7

CUTTING CHARTS

Q52 (LA or LM mount)

Operating Freq.	Inches	cm
52 MHz	54 1/2	138.4
54 MHz	54	137.2
56 MHz	53 1/2	135.9
58 MHz	52	132.1
60 MHz	50 1/4	127.6
62 MHz	48 1/4	122.6
64 MHz	47	119.4
66 MHz	45 1/2	115.6
68 MHz	43 3/4	111.1
70 MHz	42 1/2	108.0
72 MHz	41 1/4	104.8
74 MHz	40 1/4	102.2
76 MHz	39 1/2	100.3
78 MHz	38 1/2	97.8
80 MHz	37 1/2	95.3
82 MHz	36 1/2	92.7
84 MHz	35 1/2	90.2
86 MHz	34 1/2	87.6
88 MHz	33 1/4	84.5

Q88 (LA or LM mount)

Operating Freq.	Inches	cm
88 MHz	33 1/4	84.5
90 MHz	32 1/2	82.6
92 MHz	31 3/4	80.6
94 MHz	30 3/4	78.1
96 MHz	29 3/4	75.6
98 MHz	28 3/4	73.0
100 MHz	28 3/8	72.1
102 MHz	28	71.1
104 MHz	27 1/4	69.2
106 MHz	26 5/8	67.6
108 MHz	26	66.0
110 MHz	25 3/4	65.4
112 MHz	25	63.5
114 MHz	24 1/4	61.6
116 MHz	24	61.0
118 MHz	23 5/8	60.0
120 MHz	23	58.4
122 MHz	22 1/2	57.2
124 MHz	22	55.9
126 MHz	21 3/4	55.2
128 MHz	21 3/8	54.3
130 MHz	21 1/8	53.7
132 MHz	21	53.3
134 MHz	20 3/4	52.7
136 MHz	20 1/4	51.4