



零件確認書

料

號:

8403000408C

品

名:

鍍錫銅包鋼天線 IR-32-F1用 1.0Φ

規

格:

不規則型 433MHz 廠內自製

廠商料號:

廠

商:

CLIMAX

廠

牌:

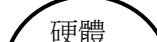
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承認日期:

2021-10-22

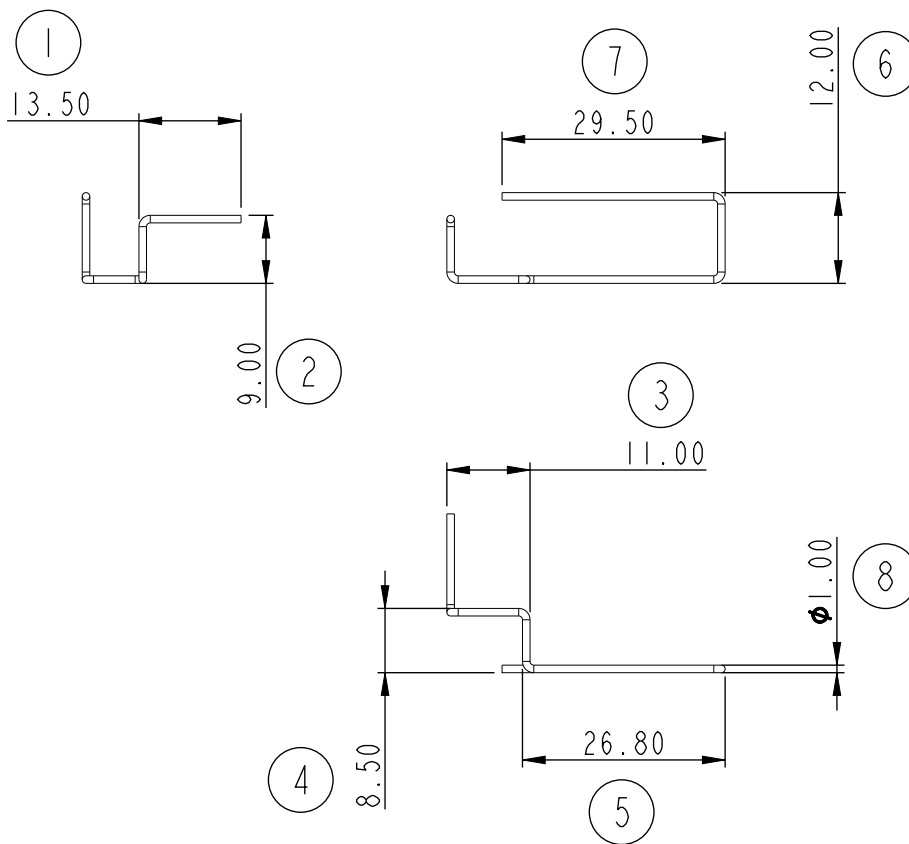
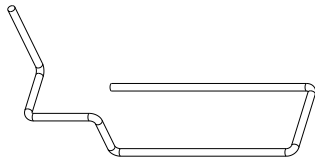
備

註:

核准	主管	承辦
 總經理室 2021-10-22 張再發	 硬體 2021-10-22 陳敏忠	 硬體 2021-10-22 施怡玫

Note:
1. (N) BALL SYMBOLS ARE CRITICAL DIMENSIONS

REVISIONS		
REV	DESCRIPTION	ENGR
M01	1ST ISSUE	0801



Climax

CLIMAX PRECISION IND. CO., LTD.
Research and Design

Drawn: Ryan

Designed: BO

Checked: Amos

Approved: Elane

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DIMENSIONAL TOLERANCES ±	M1	M2	S1	S2	P1	P2	C
0-6	0.05	0.10	0.15	0.20	0.05	0.10	0.5
6-30	0.10	0.20	0.15	0.25	0.10	0.15	1.0
30-80	0.15	0.25	0.20	0.30	0.20	0.40	2.0
80-180	0.15	0.30	0.25	0.45	0.40	0.80	3.0
180-315	0.20	0.50	0.40	0.60	0.60	1.20	3.0
315-800	0.30	0.80	0.70	1.10	0.80	1.50	4.0

Material:
Copper Plated Steel

Treatment:
Tin plating



A4
SIZE

DESCRIPTION:
IR-32-F1 433MHz

PART NO.:
8403000408C

SHEET 1 OF 1

SCALE 1.000 UNITS MM USED ON

DWG NAME 8403000408C

DWG NO.

DATE 2021/10/19

REV.
M01

Frequency	400MHz	403MHz	406MHz	409MHz	412MHz	415MHz
Ant. Port Inp. Pow. (dBi)	0	0	0	0	0	0
Rad. Pow. (dBi)	-25	-24.05	-22.86	-22.15	-21.43	-20.46
Rad. Pow. 0-90 (dBi)	-29.29	-28.27	-27.01	-26.25	-25.45	-24.43
Rad. Pow. 90-180 (dBi)	-27.03	-26.11	-24.97	-24.29	-23.63	-22.68
Peak EIRP (dBi)	-19.72	-18.72	-17.65	-16.94	-16.3	-15.4
Directivity (dBi)	5.28	5.33	5.21	5.21	5.13	5.06
Efficiency (dB)	-25	-24.05	-22.86	-22.15	-21.43	-20.46
Efficiency (%)	0.32	0.39	0.52	0.61	0.72	0.9
Gain (dBi)	-19.72	-18.72	-17.65	-16.94	-16.3	-15.4
NHPRP +/-30 (dBi)	-29.15	-28.16	-26.92	-26.18	-25.41	-24.42
NHPRP +/-45 (dBi)	-27.36	-26.37	-25.15	-24.42	-23.67	-22.67
Maximum H+V Value (dBi)	-19.72	-18.72	-17.65	-16.94	-16.3	-15.4
Maximum H+V @ Theta (deg.)	135	135	135	135	135	135
Maximum H+V @ Phi (deg.)	270	270	270	285	285	285
Minimum H+V Value (dBi)	-31.65	-30.43	-29.24	-28.48	-27.65	-26.64
Minimum H+V @ Theta (deg.)	60	120	120	120	120	120
Minimum H+V @ Phi (deg.)	30	135	135	135	150	150
Horizontal ()						
Ant. Port Inp. Pow. (dBi)	0	0	0	0	0	0
H Rad. Pow. (dBi)	-26.16	-25.19	-23.98	-23.25	-22.52	-21.53
H Rad. Pow. 0-90 (dBi)	-30.19	-29.2	-27.93	-27.19	-26.41	-25.4
H Rad. Pow. 90-180 (dBi)	-28.35	-27.4	-26.21	-25.5	-24.81	-23.82
H Peak EIRP (dBi)	-20.27	-19.24	-18.16	-17.52	-16.88	-15.9
H Directivity (dBi)	5.89	5.95	5.82	5.73	5.64	5.63
H Efficiency (dB)	-26.16	-25.19	-23.98	-23.25	-22.52	-21.53
H Efficiency (%)	0.24	0.3	0.4	0.47	0.56	0.7
H Gain (dBi)	-20.27	-19.24	-18.16	-17.52	-16.88	-15.9
H NHPRP +/-30 (dBi)	-29.77	-28.79	-27.54	-26.8	-26.03	-25.03
H NHPRP +/-45 (dBi)	-28.23	-27.25	-26.01	-25.27	-24.51	-23.51
Maximum H Value (dBi)	-20.27	-19.24	-18.16	-17.52	-16.88	-15.9
Maximum H @ Theta (deg.)	135	135	135	135	135	135
Maximum H @ Phi (deg.)	270	270	270	285	285	270
Minimum H Value (dBi)	-46.61	-45.97	-44.73	-44.26	-43.6	-42.62
Minimum H @ Theta (deg.)	0	0	0	0	0	0
Minimum H @ Phi (deg.)	180	180	180	180	180	180
Vertical ()						
Ant. Port Inp. Pow. (dBi)	0	0	0	0	0	0
V Rad. Pow. (dBi)	-31.31	-30.38	-29.32	-28.66	-27.98	-27.04
V Rad. Pow. 0-90 (dBi)	-36.57	-35.45	-34.21	-33.37	-32.5	-31.39
V Rad. Pow. 90-180 (dBi)	-32.84	-32.01	-31.02	-30.45	-29.87	-29.04
V Peak EIRP (dBi)	-24.31	-23.72	-22.53	-21.81	-21.26	-20.55
V Directivity (dBi)	7	6.66	6.79	6.85	6.72	6.49
V Efficiency (dB)	-31.31	-30.38	-29.32	-28.66	-27.98	-27.04
V Efficiency (%)	0.07	0.09	0.12	0.14	0.16	0.2
V Gain (dBi)	-24.31	-23.72	-22.53	-21.81	-21.26	-20.55

V NHPRP +/-30 (dBi)	-37.92	-36.83	-35.69	-34.96	-34.2	-33.21
V NHPRP +/-45 (dBi)	-34.76	-33.74	-32.63	-31.92	-31.18	-30.21
Maximum V Value (dBi)	-24.31	-23.72	-22.53	-21.81	-21.26	-20.55
Maximum V @ Theta (deg.)	165	165	165	165	165	165
Maximum V @ Phi (deg.)	195	195	180	180	180	180
Minimum V Value (dBi)	-56.23	-53.42	-53.95	-54.49	-50.85	-49.09
Minimum V @ Theta (deg.)	60	60	15	15	15	60
Minimum V @ Phi (deg.)	255	255	255	255	255	75

418MHz	421MHz	424MHz	427MHz	430MHz	433MHz	436MHz	439MHz	442MHz
0	0	0	0	0	0	0	0	0
-18.97	-17.77	-16.13	-14.39	-12.99	-12.31	-12.66	-14.04	-15.79
-22.88	-21.62	-19.95	-18.16	-16.71	-15.98	-16.28	-17.62	-19.32
-21.24	-20.07	-18.45	-16.75	-15.39	-14.75	-15.13	-16.54	-18.33
-13.84	-12.75	-11.18	-9.58	-8.18	-7.53	-7.97	-9.42	-11.3
5.13	5.02	4.95	4.81	4.81	4.78	4.69	4.62	4.49
-18.97	-17.77	-16.13	-14.39	-12.99	-12.31	-12.66	-14.04	-15.79
1.27	1.67	2.44	3.64	5.02	5.87	5.42	3.94	2.64
-13.84	-12.75	-11.18	-9.58	-8.18	-7.53	-7.97	-9.42	-11.3
-22.89	-21.66	-20	-18.21	-16.78	-16.06	-16.37	-17.73	-19.46
-21.16	-19.94	-18.28	-16.52	-15.1	-14.39	-14.71	-16.08	-17.81
-13.84	-12.75	-11.18	-9.58	-8.18	-7.53	-7.97	-9.42	-11.3
135	135	135	135	135	135	135	135	135
285	285	285	285	285	285	285	285	285
-25.13	-23.84	-22.09	-20.29	-18.89	-18.09	-18.03	-19.45	-21.17
120	120	120	120	120	120	120	120	90
150	150	150	150	150	150	150	150	15
0	0	0	0	0	0	0	0	0
-20.02	-18.79	-17.13	-15.36	-13.93	-13.21	-13.53	-14.89	-16.62
-23.85	-22.58	-20.91	-19.11	-17.64	-16.88	-17.18	-18.51	-20.22
-22.34	-21.14	-19.49	-17.75	-16.34	-15.64	-15.99	-17.36	-19.12
-14.35	-13.27	-11.6	-9.99	-8.58	-7.93	-8.35	-9.78	-11.54
5.67	5.52	5.53	5.37	5.35	5.28	5.18	5.11	5.08
-20.02	-18.79	-17.13	-15.36	-13.93	-13.21	-13.53	-14.89	-16.62
1	1.32	1.94	2.91	4.05	4.78	4.44	3.24	2.18
-14.35	-13.27	-11.6	-9.99	-8.58	-7.93	-8.35	-9.78	-11.54
-23.49	-22.24	-20.57	-18.77	-17.32	-16.57	-16.86	-18.21	-19.93
-21.98	-20.74	-19.07	-17.28	-15.83	-15.08	-15.38	-16.73	-18.45
-14.35	-13.27	-11.6	-9.99	-8.58	-7.93	-8.35	-9.78	-11.54
135	135	135	135	135	135	135	135	135
285	285	270	270	270	285	270	270	270
-41.87	-40.55	-39.03	-37.36	-36.06	-35.64	-36.03	-37.46	-39.19
0	0	0	0	0	0	0	0	0
180	180	180	180	180	180	180	180	180
0	0	0	0	0	0	0	0	0
-25.66	-24.53	-22.99	-21.35	-20.08	-19.61	-20.05	-21.54	-23.34
-29.86	-28.65	-26.98	-25.24	-23.86	-23.26	-23.57	-24.93	-26.59
-27.74	-26.65	-25.19	-23.63	-22.44	-22.07	-22.6	-24.2	-26.13
-19.1	-17.97	-16.25	-14.67	-13.33	-12.67	-13.05	-14.4	-15.98
6.56	6.56	6.74	6.68	6.75	6.94	7	7.14	7.36
-25.66	-24.53	-22.99	-21.35	-20.08	-19.61	-20.05	-21.54	-23.34
0.27	0.35	0.5	0.73	0.98	1.09	0.99	0.7	0.46
-19.1	-17.97	-16.25	-14.67	-13.33	-12.67	-13.05	-14.4	-15.98

-31.78	-30.65	-29.07	-27.42	-26.14	-25.66	-26.1	-27.56	-29.36
-28.81	-27.68	-26.12	-24.46	-23.2	-22.73	-23.16	-24.63	-26.43
-19.1	-17.97	-16.25	-14.67	-13.33	-12.67	-13.05	-14.4	-15.98
165	165	165	165	165	0	0	165	0
180	180	180	180	180	0	0	180	0
-47.84	-47.2	-47.32	-47.55	-49.86	-53.27	-54.14	-51.07	-60.4
60	60	60	0	0	0	0	0	75
75	75	75	90	90	90	90	90	75

445MHz	448MHz	451MHz	454MHz	457MHz	460MHz	463MHz	466MHz	469MHz
0	0	0	0	0	0	0	0	0
-17.29	-18.32	-19.04	-20.22	-20.76	-21.3	-22.04	-22.96	-23.14
-20.77	-21.76	-22.45	-23.59	-24.1	-24.62	-25.36	-26.27	-26.45
-19.87	-20.94	-21.68	-22.9	-23.47	-24.01	-24.76	-25.7	-25.87
-12.93	-13.99	-14.77	-16.05	-16.56	-17.19	-17.85	-18.94	-19.14
4.36	4.33	4.27	4.17	4.2	4.11	4.19	4.02	4
-17.29	-18.32	-19.04	-20.22	-20.76	-21.3	-22.04	-22.96	-23.14
1.87	1.47	1.25	0.95	0.84	0.74	0.63	0.51	0.49
-12.93	-13.99	-14.77	-16.05	-16.56	-17.19	-17.85	-18.94	-19.14
-20.94	-21.95	-22.68	-23.84	-24.38	-24.89	-25.66	-26.57	-26.77
-19.29	-20.3	-21.02	-22.18	-22.72	-23.24	-23.99	-24.91	-25.09
-12.93	-13.99	-14.77	-16.05	-16.56	-17.19	-17.85	-18.94	-19.14
135	120	135	135	120	135	120	120	120
285	285	285	270	270	270	270	270	270
-22.85	-23.67	-24.49	-25.65	-26.26	-26.86	-27.74	-28.81	-29.16
90	90	75	90	90	75	75	75	75
15	15	15	15	15	15	30	30	30
0	0	0	0	0	0	0	0	0
-18.11	-19.15	-19.88	-21.07	-21.62	-22.15	-22.93	-23.87	-24.08
-21.68	-22.7	-23.42	-24.59	-25.12	-25.64	-26.44	-27.37	-27.61
-20.61	-21.68	-22.42	-23.64	-24.2	-24.73	-25.5	-26.44	-26.63
-13.15	-14.2	-14.98	-16.21	-16.71	-17.33	-18.05	-19.14	-19.33
4.96	4.95	4.9	4.86	4.91	4.82	4.88	4.73	4.75
-18.11	-19.15	-19.88	-21.07	-21.62	-22.15	-22.93	-23.87	-24.08
1.55	1.22	1.03	0.78	0.69	0.61	0.51	0.41	0.39
-13.15	-14.2	-14.98	-16.21	-16.71	-17.33	-18.05	-19.14	-19.33
-21.4	-22.42	-23.16	-24.33	-24.89	-25.4	-26.2	-27.14	-27.36
-19.92	-20.94	-21.67	-22.86	-23.41	-23.93	-24.71	-25.65	-25.87
-13.15	-14.2	-14.98	-16.21	-16.71	-17.33	-18.05	-19.14	-19.33
135	135	135	135	135	135	120	135	120
270	270	270	270	270	270	270	270	270
-41.27	-42.48	-43.54	-45.06	-46.1	-47.1	-48.52	-49.61	-49.67
0	0	0	0	0	0	0	0	0
180	180	180	180	180	180	180	180	180
0	0	0	0	0	0	0	0	0
-24.93	-25.93	-26.6	-27.73	-28.22	-28.77	-29.35	-30.18	-30.26
-28.01	-28.89	-29.46	-30.49	-30.9	-31.41	-31.95	-32.74	-32.77
-27.87	-28.99	-29.76	-30.99	-31.59	-32.19	-32.81	-33.71	-33.85
-17.42	-18.5	-19.07	-20.15	-20.54	-21.04	-21.79	-22.5	-22.69
7.51	7.43	7.53	7.58	7.68	7.73	7.56	7.68	7.57
-24.93	-25.93	-26.6	-27.73	-28.22	-28.77	-29.35	-30.18	-30.26
0.32	0.26	0.22	0.17	0.15	0.13	0.12	0.1	0.09
-17.42	-18.5	-19.07	-20.15	-20.54	-21.04	-21.79	-22.5	-22.69

-30.93	-31.84	-32.44	-33.5	-33.93	-34.41	-34.92	-35.68	-35.7
-27.97	-28.91	-29.53	-30.6	-31.06	-31.58	-32.1	-32.91	-32.94
-17.42	-18.5	-19.07	-20.15	-20.54	-21.04	-21.79	-22.5	-22.69
0	0	0	0	0	0	0	0	0
0	0	15	15	0	15	15	0	15
-63.48	-64.16	-58.78	-67.5	-63.48	-57.7	-55.48	-55.39	-55.38
60	120	60	60	60	60	75	60	60
75	135	75	75	75	75	75	75	75

472MHz	475MHz	478MHz	481MHz	484MHz	487MHz	490MHz	493MHz	496MHz
0	0	0	0	0	0	0	0	0
-23.29	-23.79	-24.55	-24.79	-25.26	-25.44	-25.5	-25.85	-26.35
-26.59	-27.1	-27.87	-28.11	-28.62	-28.85	-28.94	-29.33	-29.88
-26.03	-26.53	-27.27	-27.51	-27.94	-28.09	-28.12	-28.44	-28.89
-19.27	-19.75	-20.59	-20.93	-21.36	-21.3	-21.42	-21.75	-22.04
4.02	4.04	3.96	3.86	3.9	4.14	4.08	4.1	4.31
-23.29	-23.79	-24.55	-24.79	-25.26	-25.44	-25.5	-25.85	-26.35
0.47	0.42	0.35	0.33	0.3	0.29	0.28	0.26	0.23
-19.27	-19.75	-20.59	-20.93	-21.36	-21.3	-21.42	-21.75	-22.04
-26.92	-27.44	-28.23	-28.49	-29	-29.22	-29.3	-29.68	-30.22
-25.25	-25.75	-26.52	-26.77	-27.26	-27.47	-27.54	-27.91	-28.44
-19.27	-19.75	-20.59	-20.93	-21.36	-21.3	-21.42	-21.75	-22.04
120	120	120	120	120	120	120	120	120
300	270	285	270	285	285	300	285	300
-29.6	-30.4	-31.53	-32.01	-32.77	-33.18	-33.56	-34.17	-34.72
75	75	75	75	75	75	75	75	75
30	30	30	30	30	30	30	30	30
0	0	0	0	0	0	0	0	0
-24.25	-24.79	-25.61	-25.9	-26.42	-26.62	-26.73	-27.12	-27.62
-27.78	-28.33	-29.19	-29.49	-30.06	-30.3	-30.45	-30.87	-31.42
-26.8	-27.33	-28.12	-28.4	-28.87	-29.05	-29.14	-29.5	-29.97
-19.59	-19.93	-20.85	-21.13	-21.47	-21.7	-21.9	-22.09	-22.46
4.66	4.86	4.76	4.77	4.95	4.92	4.83	5.03	5.16
-24.25	-24.79	-25.61	-25.9	-26.42	-26.62	-26.73	-27.12	-27.62
0.38	0.33	0.27	0.26	0.23	0.22	0.21	0.19	0.17
-19.59	-19.93	-20.85	-21.13	-21.47	-21.7	-21.9	-22.09	-22.46
-27.53	-28.08	-28.93	-29.24	-29.79	-30.04	-30.16	-30.58	-31.14
-26.05	-26.59	-27.42	-27.72	-28.27	-28.5	-28.62	-29.03	-29.57
-19.59	-19.93	-20.85	-21.13	-21.47	-21.7	-21.9	-22.09	-22.46
135	120	105	120	120	120	135	105	135
270	270	270	270	255	285	270	270	285
-50.1	-51.75	-53.51	-54.44	-55.48	-55.38	-58.13	-63.55	-58.98
0	0	0	0	0	0	0	0	0
180	180	180	180	180	0	0	0	180
0	0	0	0	0	0	0	0	0
-30.3	-30.68	-31.2	-31.25	-31.56	-31.69	-31.58	-31.83	-32.29
-32.79	-33.16	-33.69	-33.76	-34.11	-34.3	-34.27	-34.59	-35.12
-33.91	-34.28	-34.8	-34.84	-35.08	-35.15	-34.95	-35.1	-35.49
-22.6	-23.13	-23.85	-24.1	-24.62	-24.97	-25.14	-25.58	-26.15
7.7	7.55	7.35	7.15	6.94	6.72	6.44	6.25	6.14
-30.3	-30.68	-31.2	-31.25	-31.56	-31.69	-31.58	-31.83	-32.29
0.09	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.06
-22.6	-23.13	-23.85	-24.1	-24.62	-24.97	-25.14	-25.58	-26.15

-35.75	-36.1	-36.55	-36.52	-36.78	-36.87	-36.72	-36.93	-37.4
-32.98	-33.32	-33.8	-33.81	-34.1	-34.23	-34.12	-34.36	-34.85
-22.6	-23.13	-23.85	-24.1	-24.62	-24.97	-25.14	-25.58	-26.15
0	0	0	0	0	15	0	0	165
15	15	15	0	0	0	0	0	180
-53.82	-55.93	-54.36	-54.45	-55.12	-56.68	-57.68	-59.75	-60.9
60	60	120	60	105	105	105	105	105
75	75	120	75	150	135	150	150	150

499MHz	502MHz
0	0
-26.31	-27.15
-29.89	-30.76
-28.82	-29.64
-21.82	-22.87
4.49	4.28
-26.31	-27.15
0.23	0.19
-21.82	-22.87
-30.21	-31.07
-28.42	-29.29
-21.82	-22.87
135	120
285	285
-34.84	-36.02
75	75
30	30
0	0
-27.58	-28.43
-31.42	-32.29
-29.9	-30.74
-22.1	-23.2
5.48	5.23
-27.58	-28.43
0.17	0.14
-22.1	-23.2
-31.12	-32
-29.54	-30.41
-22.1	-23.2
135	135
285	270
-58.38	-59.81
0	15
180	0
0	0
-32.28	-33.08
-35.17	-36.04
-35.41	-36.14
-26.05	-26.85
6.23	6.23
-32.28	-33.08
0.06	0.05
-26.05	-26.85

-37.4	-38.24
-34.86	-35.69
-26.05	-26.85
165	165
180	180
-60.52	-59.98
105	105
150	150
