FCC TEST REPORT

for

PART 15, SUBPART B CLASS B

EQUIPMENT : JOYSTICK

MODEL NO. : Flight2000 Digital F30D
Flight2000 Programmable Force Feedback F-30

F C C I D : FSUGJOS30D

FILING TYPE : CERTIFICATION

APPLICANT : **KYE SYSTEMS CORP.**
No. 492, Sec. 5, Chung Hsin Rd., San Chung,
Taipei Hsien, 241,Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

SPORTON INTERNATIONAL INC.

6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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CERTIFICATE OF COMPLIANCE

for

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I **HEREBY** CERTIFY THAT :

The measurement shown in this report were made in accordance with the procedures given in **ANSI C63.4 -1992** and the energy emitted by this equipment was ***passed*** both radiated and conducted emissions **Class B** limits. Testing was carried out on **Sep. 29, 1998** at **SPORTON International Inc.** LAB.

Lenore Chang Nov.25,1998

Lenore Chang
President

SPORTON INTERNATIONAL INC.

6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST

1.1. APPLICANT

KYE SYSTEMS CORP.

No. 492, Sec. 5, Chung Hsin Rd., San Chung,

Taipei Hsien, 241,Taiwan, R.O.C.

1.2. MANUFACTURER :

Same as 1.1.

1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

EQUIPMENT : JOYSTICK

MODEL NO. : Flight2000 Digital F30D, Flight2000 Programmable Force Feedback F-30

TRADE NAME : GENIUS

DATA CABLE : Shielded, 1.6m (Model : Fight2000 Digital F30D)

DATA CABLE : Shielded, 1.8m (Model : Fight2000 Programmable Force Feedback F-30)

POWER SUPPLY TYPE : Linear (for Model : Fight2000 Programmable Force Feedback F-30)

POWER CORD : N/A

1.4. FEATURE OF EQUIPMENT UNDER TEST

Digital joystick works efficiently in each game you play. It works in both analog or digital joystick mode.

- Eight programmable buttons : Most games use button1 (the trigger) to fire weapons. Games ofter use other buttons to select, load weapons, assign targets...and so on.

  ⇨Four conventional joystick buttons on the handle (button 1-3)

  ⇨Six additional buttons on the base (button 5-9)
- Throttle : The throttle gives you command over incremental game functions. To speed up, slow down, enjoy the feeling of different speed. It can also assign as thrust or altitude.
- Rudder : Rudder gives you a 3D control besides conventional x-axis, and y-axis joystick movement. That will give you more rapid movement for dogfight.
- Hat switch : Hat switch gives different and directional view sights to see the environment with a touch of the thumb. You can enjoy different view point as your wish.

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

2.1. TEST MANNER

a. The EUT has been associated with personal computer and peripherals pursuant to ANSI C63.4-1992 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.

b. The DELL keyboard, HP printer, ACEEX modem, HP monitor, PRIMAX PS/2 mouse and EUT were connected to the FIC P.C. for EMI test.

c. Frequency range investigated: Conduction 450 KHz to 30 MHz, Radiation 30 MHz to 1000 MHz.

2.2. DESCRIPTION OF TEST SYSTEM

Support Device 1. --- MONITOR (HP)

FCC ID	: ACJ93312116
Model No.	: D2807A
Serial No.	: SP1007
Data Cable	: Shielded, 360 degree via metal backshells, 1.7m
Power Supply Type	: Switching
Power Cord	: Non-shielded

Support Device 2. --- KEYBOARD (DELL)

FCC ID	: GYUM92SK
Model No.	: AT101 (DE8M)
Serial No.	: SP1009
Data Cable	: Shielded, 360 degree via metal backshells, 1.9m

Support Device 3. --- PRINTER (HP)

FCC ID	: B94C2642X
Model No.	: DESK JET 400
Serial No.	: SP0037
Data Cable	: Shielded, 360 degree via metal backshells, 1.35m
Power Supply Type	: Linear

Support Device 4. -- MODEM (ACEEX)

FCC ID	: IFAXDM1414
Model No.	: DM1414
Power Supply Type	: Linear, AC Adapter
Power Cord	: Non-shielded
Serial No.	: SP1019
Data Cable	: Shielded, 360 degree via metal backshells, 1.15m

Support Device 5. -- PS/2 MOUSE (PRIMAX)

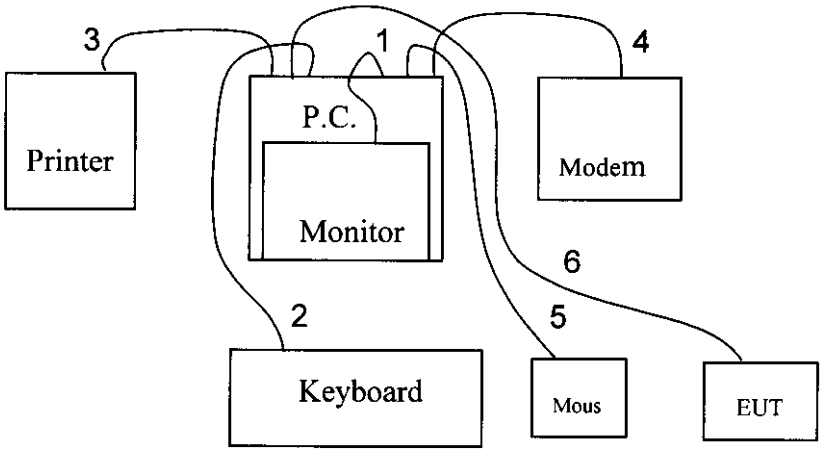
FCC ID	: EMJMUSJQ
Model No.	: MUS9J
Serial No.	: SP1012
Data Cable	: Shielded, 1.7m

Support Device 6. --- P.C. (DELL)

FCC ID	: N/A
Model No.	: DCS
Serial No.	: SP1005
Data Cable	: Shielded
Power Cord	: Non-hielded
Power Supply Type	: Switching

(Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.)

2.3. CONNECTION DIAGRAM OF TEST SYSTEM



1. The I/O cable is connected to the support device 1.
2. The I/O cable is connected to the support device 2.
3. The I/O cable is connected to the support device 3.
4. The I/O cable is connected to the support device 4.
5. The I/O cable is connected to the support device 5.
6. The I/O cable is connected to the EUT.

3. TEST SOFTWARE

An program, Joystick Test of Control Panel under WIN98, which was provided by the applicant was used during testing.

An executive program, EMITEST.EXE under WIN 98, which generates a complete line of continuously repeating " H " pattern was used as the test software.

a. Turn on the power of all equipment.
b. The PC transmits the " H " character to the EUT.
c. The monitor then displaying the " H " characters on the screen contimously and repeatly.
d. The PC sends " H " messages to the printer, then the printer prints it on the paper.
e. The PC sends " H " messages to the modem.
f. The PC sends " H " messages to the internal Hard Disk, then the hard disk reads and writes the message.
g. Repeat the steps from b to f.

4. GENERAL INFORMATION OF TEST

4.1. TEST FACILITY

This test was carried out by SPORTON INTERNATIONAL INC.

Test Site Location : No. 30-1, Lin 6, Diing-Fwu Tsuen, Lin-Kou-Hsiang, Taipei Hsien, Taiwan, R.O.C.

TEL : 886-2-2601-1640, FAX : 886-2-2601-1695

4.2. STANDARD FOR METHODS OF MEASUREMENT

ANSI C63.4-1992

4.3 .TEST IN COMPLIANCE WITH

FCC PART 15, SUBPART B CLASS B

4.4. FREQUENCY RANGE INVESTIGATED

a. Conduction : from 450 KHz to 30 MHz

b. Radiation : from 30 MHz to 1000 MHz.

4.5. TEST DISTANCE

The test distance of radiated emission from antenna to EUT is 3M.

5. TEST OF CONDUCTED POWERLINE

Conducted Emissions were measured from 450 KHz to 30 MHz with a bandwidth of 9 KHz on the 115 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-1992 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in Figure 5-3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.1. MAJOR MEASURING INSTRUMENTS

• Test Receiver	(HP 8591EM)
Attenuation	0 dB
Start Frequency	0.45 MHz
Stop Frequency	30 MHz
Step MHz	0.007 MHz
IF Bandwidth	9 KHz

5.2. TEST PROCEDURES

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room and was kept at least 80 centimeters from any other grounded conducting surface.

b. Connect EUT to the power mains through a line impedance stabilization network (LISN).

c. All the support units are connect to the other LISN.

d. The LISN provides 50 ohm coupling impedance for the measuring instrument.

e. The FCC states that a 50 ohm , 50 microhenry LISN should be used.

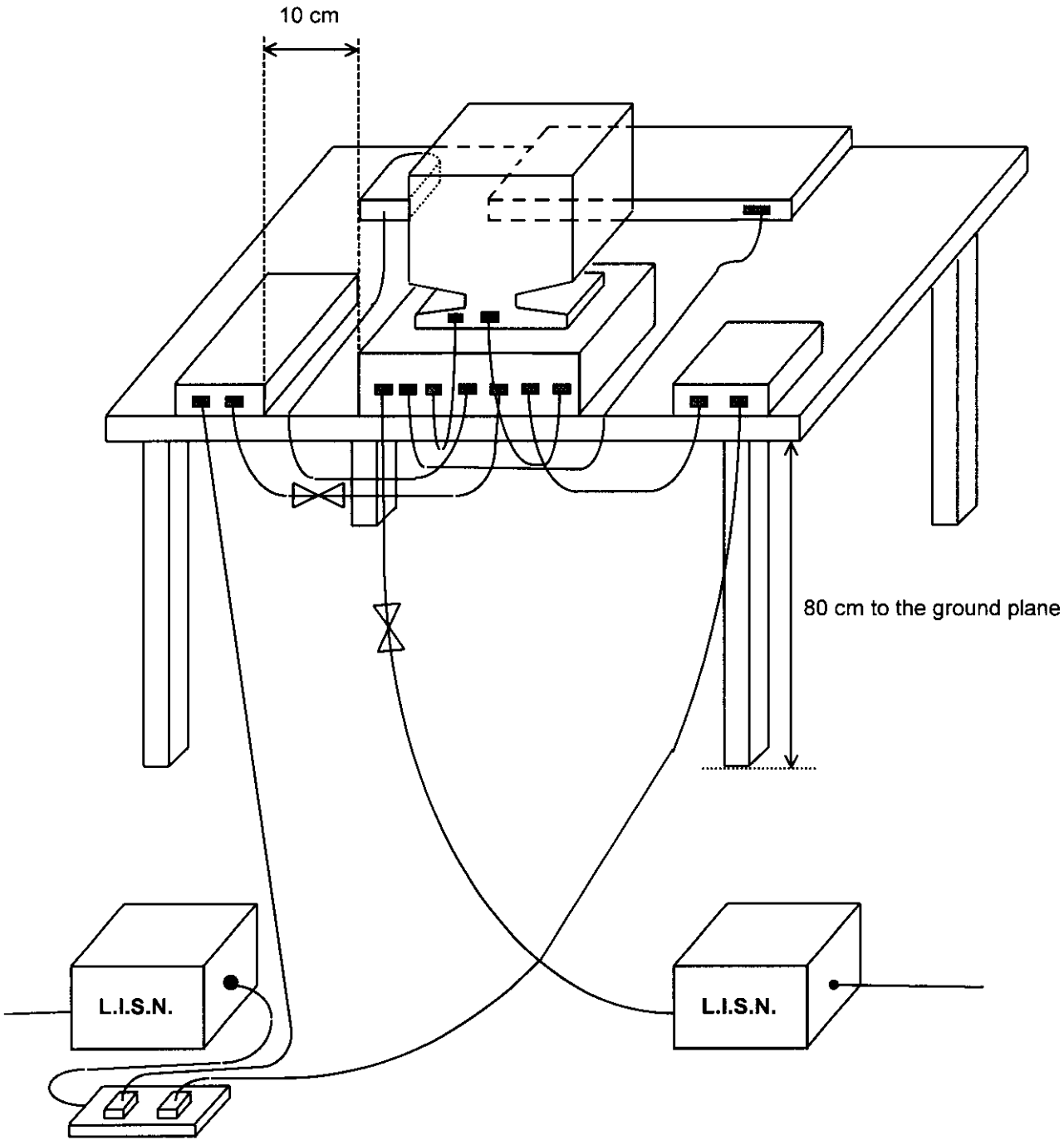
f. Both sides of AC line were checked for maximum conducted interference.

g. The frequency range from 450 KHz to 30 MHz was searched.

h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

i. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported otherwise the emissions which do not have 6 dB margin will be retested on by one using the quasi-peak method and reported.

5.3. TYPICAL TEST SETUP LAYOUT OF CONDUCTED POWERLINE



5.4. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 23℃
- Relative Humidity : 40% RH
- Test Model : F-30
- Test Date : Sep. 29, 1998

The Conducted Emission test was passed at Neutral 24.44 MHz/ 41.70 dBuV.

Frequency	Line / Neutral	Meter Reading		Limits		Margin
(MHz)		(dBuV)	(uV)	(dBuV)	(uV)	(dB)
7.79	L	40.00	100.00	48.00	251.19	-8.00
16.29	L	40.80	109.65	48.00	251.19	-7.20
24.44	L	40.90	110.92	48.00	251.19	-7.10
7.86	N	36.00	63.10	48.00	251.19	-12.00
16.29	N	41.10	113.50	48.00	251.19	-6.90
24.44	N	41.70	121.62	48.00	251.19	-6.30

Test Engineer: Kenny Chuang

Kenny Chuang

5.4.1. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 23℃
- Relative Humidity : 40% RH
- Test Model : F-30D
- Test Date : Sep. 29, 1998

The Conducted Emission test was passed at Line 7.16 MHz/ 44.40 dBuV.

Frequency	Line / Neutral	Meter Reading		Limits		Margin
(MHz)		(dBuV)	(uV)	(dBuV)	(uV)	(dB)
0.22	L	40.80	109.65	48.00	251.19	-7.20
7.58	L	44.30	164.06	48.00	251.19	-3.70
8.99	L	42.90	139.64	48.00	251.19	-5.10
0.22	N	41.80	123.03	48.00	251.19	-6.20
7.16	N	44.40	165.96	48.00	251.19	-3.60
9.48	N	43.90	156.68	48.00	251.19	-4.10

Test Engineer: Kenny Chuang

Kenny Chuang

6. TEST OF RADIATED EMISSION

Radiated emissions from 30 MHz to 1000 MHz were measured with a bandwidth of 120 KHz according to the methods defines in ANSI C63.4-1992. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in Figure 6-3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1. MAJOR MEASURING INSTRUMENTS

• Amplifier	(HP 8447D)
Attenuation	0 dB
RF Gain	20 dB
Signal Input	0.1 MHz to 1.3 GHz
• Spectrum Analyzer	(HP 8568B)
Attenuation	0 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	1 MHz
Video Bandwidth	1 MHz
Signal Input	100 Hz to 1.5 GHz
• Quasi-Peak Adapter	(HP 85650A)
Resolution Bandwidth	120 KHz
Frequency Band	30 MHz to 1 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode
OFF for Peak Mode	

6.4. TEST RESULT OF RADIATED EMISSION

- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 1000 MHz
- Test Distance : 3 M
- Temperature : 26℃
- Relative Humidity : 72 % RH
- Test Model : F30
- Test Date : Sep. 28, 1998
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Sample Calculation at 69.00 MHz

  Corrected Reading = 5.50 + 1.20 + 30.04 = 36.74 (dBuV/m)

The Radiated Emission test was passed at

Vertical 69.00 MHz / 36.74 dBuV

Antenna Height 2.5 Meter , Turntable Degree 174 °.

Frequency	Polarity	Antenna Factor	Cable Loss	Reading	Limits		Emission	Level	Margin
(MHz)		(dB)	(dB)	(dBuV)	(dBuV)	(uV)	(dBuV)	(uV)	(dB)
69.00	V	5.50	1.20	30.04	40.00	100	36.74	68.71	-3.26
32.59	V	-1.42	0.81	35.68	40.00	100	35.07	56.69	-4.93
56.70	V	3.57	1.14	31.60	40.00	100	36.31	65.39	-3.69
48.88	V	2.15	1.00	29.90	40.00	100	33.05	44.93	-6.95
122.19	V	10.48	1.72	22.99	43.50	150	35.19	57.48	-8.31
172.04	V	12.38	2.23	21.34	43.50	150	35.95	62.73	-7.55

Test Engineer : William Lee

William Lee

6.4.1. TEST RESULT OF RADIATED EMISSION

- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 1000 MHz
- Test Distance : 3 M
- Temperature : 26℃
- Relative Humidity : 72 % RH
- Test Model : F30D
- Test Date : Sep. 28, 1998
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Sample Calculation at 61.25 MHz

  Corrected Reading = 4.59 + 1.20 + 30.82 = 36.61 (dBuV/m)

The Radiated Emission test was passed at

Vertical **61.25 MHz / 36.61 dBuV**

Antenna Height 2.5 Meter , Turntable Degree 206 °.

Frequency	Polarity	Antenna Factor	Cable Loss	Reading	Limits		Emission	Level	Margin
(MHz)		(dB)	(dB)	(dBuV)	(dBuV)	(uV)	(dBuV)	(uV)	(dB)
61.25	V	4.59	1.20	30.82	40.00	100	36.61	67.69	-3.39
57.17	V	3.69	1.15	31.75	40.00	100	36.59	67.53	-3.41
69.20	V	5.52	1.20	28.92	40.00	100	35.64	60.53	-4.36
117.60	V	10.34	1.68	20.69	43.50	150	32.70	43.15	-10.80
172.40	V	12.41	2.23	19.29	43.50	150	33.93	49.72	-9.57
73.60	H	5.96	1.27	26.03	40.00	100	33.27	46.08	-6.73

Test Engineer : William Lee

William Lee

7. ANTENNA FACTOR AND CABLE LOSS

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	-1.91	0.90
35	-0.50	0.92
40	0.61	1.04
45	1.40	1.28
50	2.39	1.10
55	3.54	1.11
60	4.40	1.30
65	4.84	1.40
70	5.59	1.37
75	6.21	1.24
80	7.60	1.51
85	7.73	1.60
90	8.22	1.60
95	8.90	1.70
100	9.36	1.70
110	10.01	1.70
120	10.41	1.90
130	10.84	1.90
140	11.42	1.91
150	11.91	2.01
160	12.25	2.11
170	12.72	2.21
180	13.02	2.30
190	13.50	2.30
200	14.05	2.40
220	15.11	2.50
240	16.81	2.60
260	17.51	2.71
280	17.70	2.90
300	17.89	2.91
320	18.00	3.10
340	18.33	3.20
360	19.44	3.30
380	20.31	3.40
400	21.19	3.50
450	21.10	3.70
500	22.21	4.10
550	23.42	4.30
600	24.01	4.50
650	25.11	4.70
700	26.00	4.90
750	26.41	5.11
800	27.10	5.50
850	27.51	5.60
900	27.90	5.80
950	28.01	5.90
1000	28.1	6.00

8 LIST OF MEASURING EQUIPMENT USED

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver (site 2)	HP	8591EM	3710A01187	9 KHz – 1.8 GHz	Sep. 29, 1998	Conduction
LISN (EUT) (site 2)	Telemeter	NNB-2/16Z	98009	50 ohm / 50 uH	Jan. 29, 1998	Conduction
LISN (Support Unit) (site 2)	EMCO	3810/2NM	9703-1839	50 ohm / 50 uH	Jul. 06, 1998	Conduction
Quasi-peak Adapter (site 3)	HP	85650A	2811A01116	9KHz -1 GHz	Jul. 19, 1998	Radiation
Amplifier (Site 3)	HP	8447D	2944A09068	0.1MHz -1.3GHz	Aug. 27, 1998	Radiation
Spectrum Analyzer (site 3)	HP	8568B	2732A04100	100Hz – 1.5GHz	July 19, 1998	Radiation
Bilog Antenna (Site 3)	CHASE	CBL6112A	2320	30MHz -2GHz	Sep. 10, 1998	Radiation
Half-wave dipole antenna (Site 3)	EMCO	3121C	9705-1285	28 M - 1GHz	May 19, 1998	Radiation
Turn Table (site 3)	EMCO	2080	9711-2022	0 ~ 360 degree	N/A	Radiation
Antenna Mast (site 3)	EMCO	2075	9710-2101	1 m- 4 m	N/A	Radiation