Compliance Test Report for FCC

Report Number		ESTF150309-001		
Applicant	Company name	Saulabi Corporation		
	Address	2F. 259 Nae-dong, Ojeong-gu, Bucheon-si, Gyeonggi-do, Korea		
	Telephone	82-32-679-3544		
Product	Product name	Joystick		
	Model No.	SPS-1000	Manufacturer	Saulabi Corporation
	Serial No.	NONE	Country of origin	Korea
Test date	2003-09-19 ~ 2003-09-19		Date of issue	2003-09-22
Test location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2002 , ANSI C 63.4 2001			
Test item	■ Conducted Emission	□ Class A ■ Class B	Test result	OK
	■ Radiated Emission	□ Class A ■ Class B	Test result	OK
Measurement facility registration number	94696			
Tested by	Senior Engineer J.M. Yang	(Signature)		
Reviewed by	Director T.K. Lee	(Signature)		
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- This is certified that the above mentioned producs have been tested for the sample provided by client
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Contents

1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.
ESTECH attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : 3 rd Fl., Chungdam Bldg., 119-1 Chungdam-dong Kangnam-gu , Seoul, Korea
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

FCC : Filed Laboratory at Federal Communications Commission

2. Description of EUT

2.1 Summary of Equipment Under Test

Product	: Joystick
Model Number	: SPS-1000
Serial Number	: NONE
Manufacturer	: Saulabi Corporation
Country of origin	: Korea
Rating	: 3.3V, 8V
Receipt Date	: 2003-09-16

2.2 General descriptions of EUT

- Joystick
- Dimension : 380 mm * 240 mm * 140 mm
- Weight : 5 Kg

3. Test Standards

Test Standard : FCC PART 15 (2002)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2001)

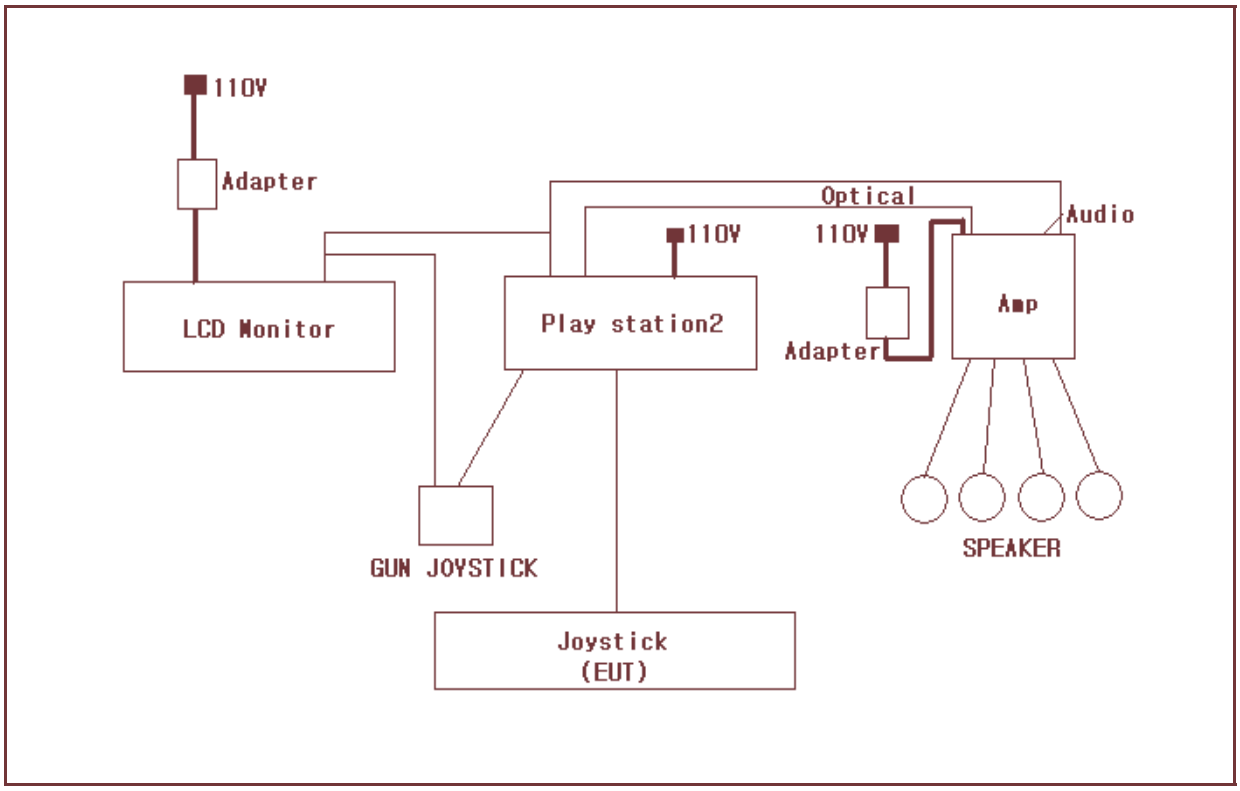
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

4. Measurement Condition

4.1 EUT Operation.

* The EUT was in the following operation mode during all testing
* The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected hightest level of emission
* During testing, we operate the EUT continuously

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Joystick	SPS-1000	NONE	Saulabi Corporation	EUT
LCD Monitor	FD-005	NONE	Dell Computer	-
Adpater	ADP-70EB	TH-09364U-17971-18E-00VX	PATENTS PENDING	-
Playstation2	SCPH-30005 R	M0550967	Sony Computer Entertainment Inc.	-
Gun Joystick	NPC-106	NONE	NAMCO LTD.	-
AMP	CSW3750	SG37503191000129	Creative	-
Adpater	KD-1540	NONE	JC HYUN SYSTEMS, INC.	-
Speaker	NONE	NONE	Creative	-
Speaker	NONE	NONE	Creative	-
Speaker	NONE	NONE	Creative	-
Speaker	NONE	NONE	Creative	-

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
Joystick	Joystick	Playstation2	Joystick	2.0		-
Playstation2	USB	Gun Joystick	-	2.0		-
Playstation2	AV MULTI	LCD Monitor	Video	2.0		-
Playstation2	OPTICAL	AMP	Optical	1.0		-
Playstation2	AV MULTI	AMP	AUDIO R	2.0		-
Playstation2	AV MULTI	AMP	AUDIO L	2.0		-
Gun Joystick	Video	LCD Monitor	Video	2.0		-
AMP	Audio Center	Speaker	-	2.0		-
AMP	Audio Rear R	Speaker	-	2.0		-
AMP	Audio Rear L	Speaker	-	2.0		-
AMP	Audio Front R	Speaker	-	2.0		-
AMP	DC Power	Adapter	-	2.0		-
LCD Monitor	DC Power	Adapter	-	2.0		-

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2002) & ANSI C 63.4 (2001). The test setup was made according to FCC Part 15 (2002) & ANSI C 63.4 (2001) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test set-up.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Receiver	ESPC	Rohde & Schwarz	845296/021	2004.6.17
Spectrum Analyzer	R3261B	ADVANTEST	1720302	2004.2.7
LogBicon Antenna	VULB 9160	S/B	3107	2004.6.13
Turn Table	2087	EMCO	2129	-
Antenna Mast	2070-01	EMCO	9702-203	-
ANT Mast Controller	2090	EMCO	1535	-
Turn Table Controller	2090	EMCO	1535	-

5.2 Environmental Condition

Test Place : Open site(3m)
Temperature (°C) : 26 ℃
Humidity (%) : 50 %

5.3 Test data

Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dBμV/m)
55.00	18.60	V	1.0	12.40	1.1	40.0	32.10	-7.90
60.02	19.70	H	3.2	12.67	1.2	40.0	33.52	-6.48
80.01	23.60	H	3.0	8.77	1.3	40.0	33.69	-6.31
90.03	22.60	H	3.0	9.30	1.5	43.5	33.37	-10.13
110.00	12.40	H	2.8	11.07	1.6	43.5	25.07	-18.43
143.99	22.80	V	1.0	13.40	1.9	43.5	38.07	-5.43
159.76	19.80	H	2.8	13.98	1.9	43.5	35.70	-7.80
196.63	26.40	H	2.8	11.24	2.2	43.5	39.84	-3.66
208.89	23.60	H	2.5	10.60	2.2	43.5	36.42	-7.08
219.00	16.90	H	1.8	10.79	2.3	43.5	29.98	-13.52
245.78	23.60	H	1.4	11.84	2.4	46.0	37.87	-8.13
250.05	18.60	H	1.3	11.92	2.4	46.0	32.89	-13.11
294.93	18.30	V	1.0	13.11	2.6	46.0	34.03	-11.97
336.01	17.10	H	1.2	13.99	2.8	46.0	33.91	-12.09
372.54	17.60	H	1.2	14.68	3.0	46.0	35.32	-10.68
440.29	16.00	V	1.2	16.21	3.3	46.0	35.49	-10.51
650.30	14.10	V	1.0	19.63	4.1	46.0	37.83	-8.17
Remark	H : Horizontal, V : Vertical							

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2002) & ANSI C 63.4 (2001) The test setup was made according to FCC Part 15 (2002) & ANSI C 63.4 (2001) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	ESH3-Z5	Rohde & Schwarz	838979/010	2004. 2. 7
LISN	NNLA8120A	Schwarzbeck	NONE	2004. 2. 7
TEST Receiver	ESPC	Rohde & Schwarz	845296/021	2004. 6. 17
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2004. 6. 17

6.2 Environmental Condition

Test Place : Shield Room
Temperature (°C) : 21 ℃
Humidity (%) : 42 %

6.3 Test data

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dBμV)
0.150	0.07	0.0	H	66.00	46.40	46.47	56.00		
0.191	0.07	0.0	H	64.01	38.56	38.66	54.01		
0.231	0.07	0.1	H	62.43	41.21	41.33	52.43		
0.338	0.07	0.1	N	59.25	34.98	35.17	49.25		
0.349	0.07	0.1	H	58.98	36.30	36.49	48.98		
0.378	0.07	0.1	N	58.32	38.85	39.06	48.32		
0.595	0.08	0.2	H	56.00	25.52	25.80	46.00		
1.191	0.09	0.2	H	56.00	25.77	26.08	46.00		
1.488	0.10	0.2	H	56.00	26.56	26.91	46.00		
1.905	0.11	0.3	H	56.00	27.09	27.49	46.00		
1.967	0.11	0.3	H	56.00	29.47	29.88	46.00		
4.651	0.19	0.3	H	56.00	25.87	26.36	46.00		
11.445	0.43	0.7	H	60.00	20.70	21.79	50.00		
15.741	0.62	0.8	N	60.00	25.32	26.74	50.00		
18.908	0.68	0.8	H	60.00	25.55	27.03	50.00		
19.520	0.69	0.8	N	60.00	28.73	30.22	50.00		
22.892	0.77	0.9	N	60.00	31.21	32.84	50.00		
24.594	0.81	0.9	H	60.00	29.09	30.79	50.00		
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

7.1 Setup for Radiated Test : 30 ~ 1000 MHz

[Front]

[Rear]

7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]

[Rear]

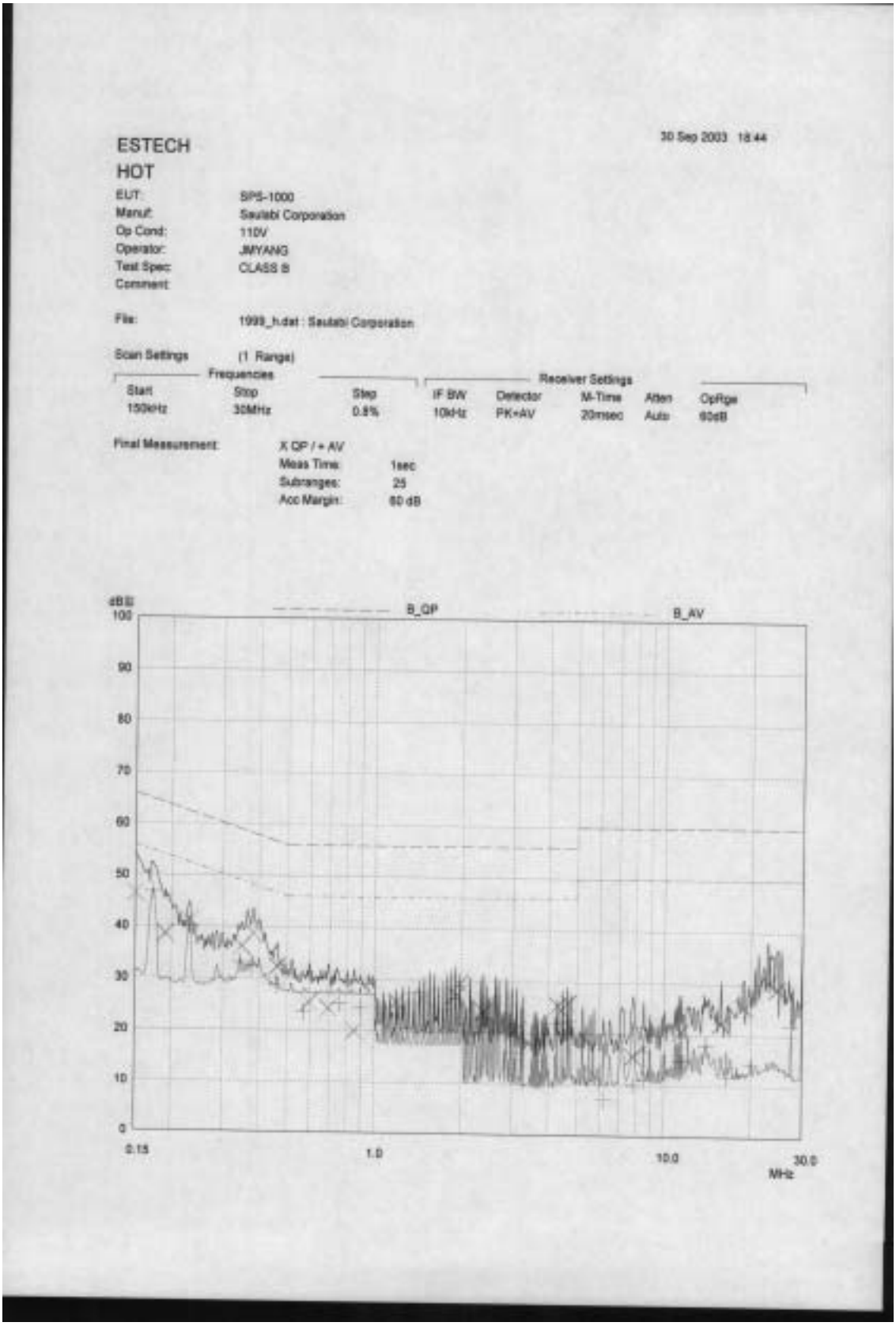
8. Photographs of EUT

[Front]

[Rear]

Appendix 1. Spectral diagram

*HOT



*NETRUL

30 Sep 2003 18:22

ESTECH

NEUTRAL

EUT:	SPS-1000
Manuf:	Saulabi Corporation
Op Cond:	110V
Operator:	JMYANG
Test Spec:	CLASS B
Comment:	

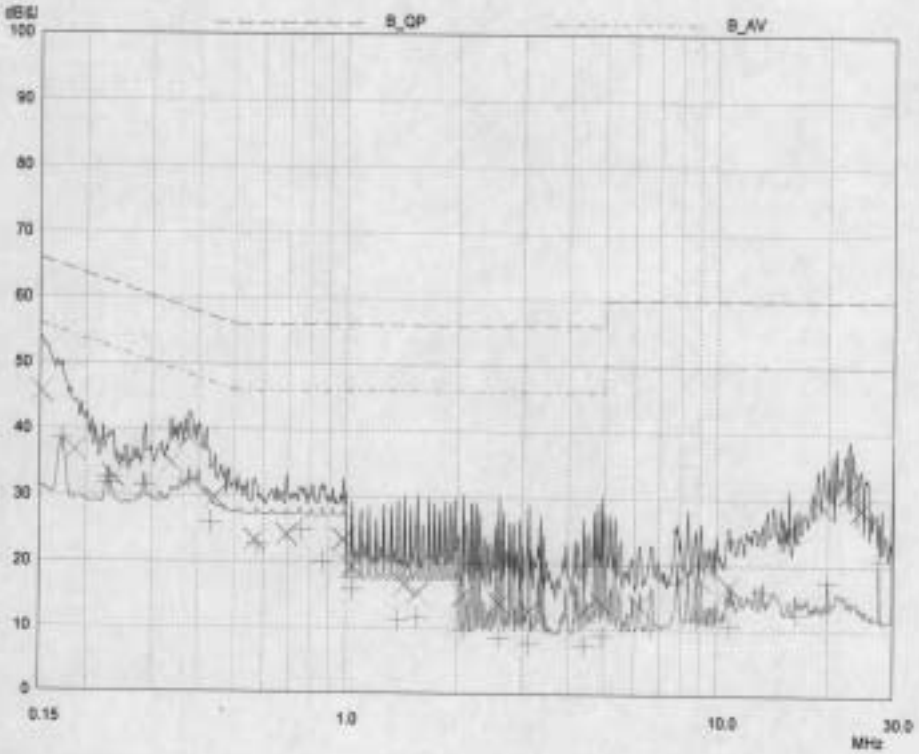
File: 1999_n.dat : Saulabi Corporation

Scan Settings (1 Range)

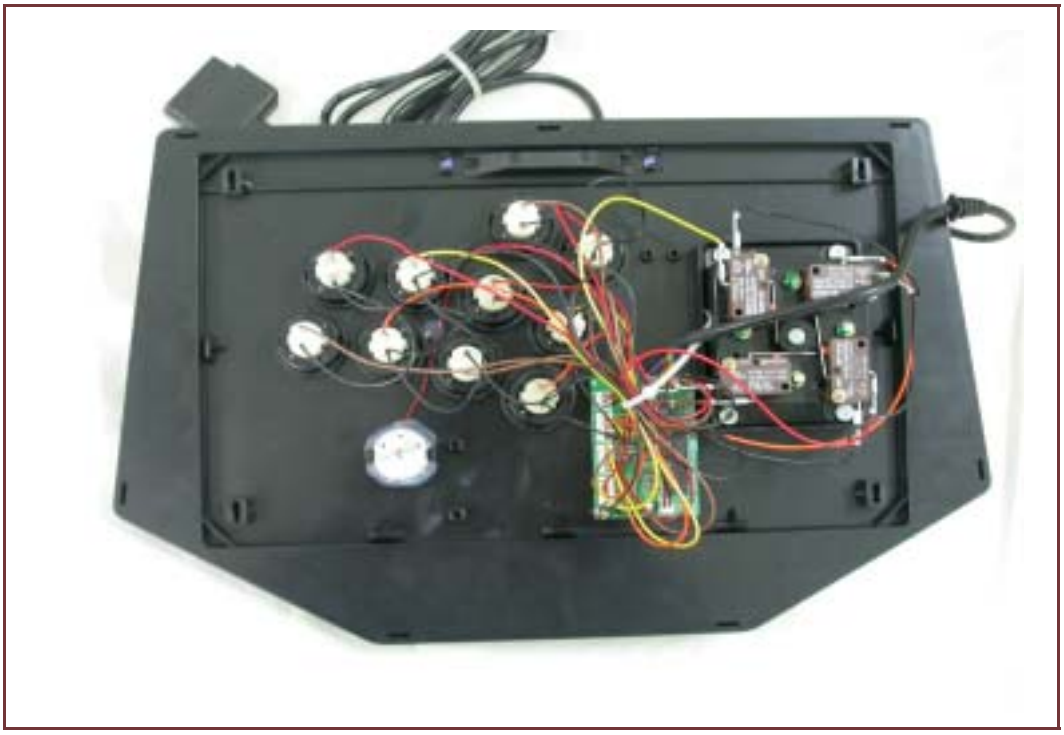
Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
150kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB

Final Measurement: X QP / + AV

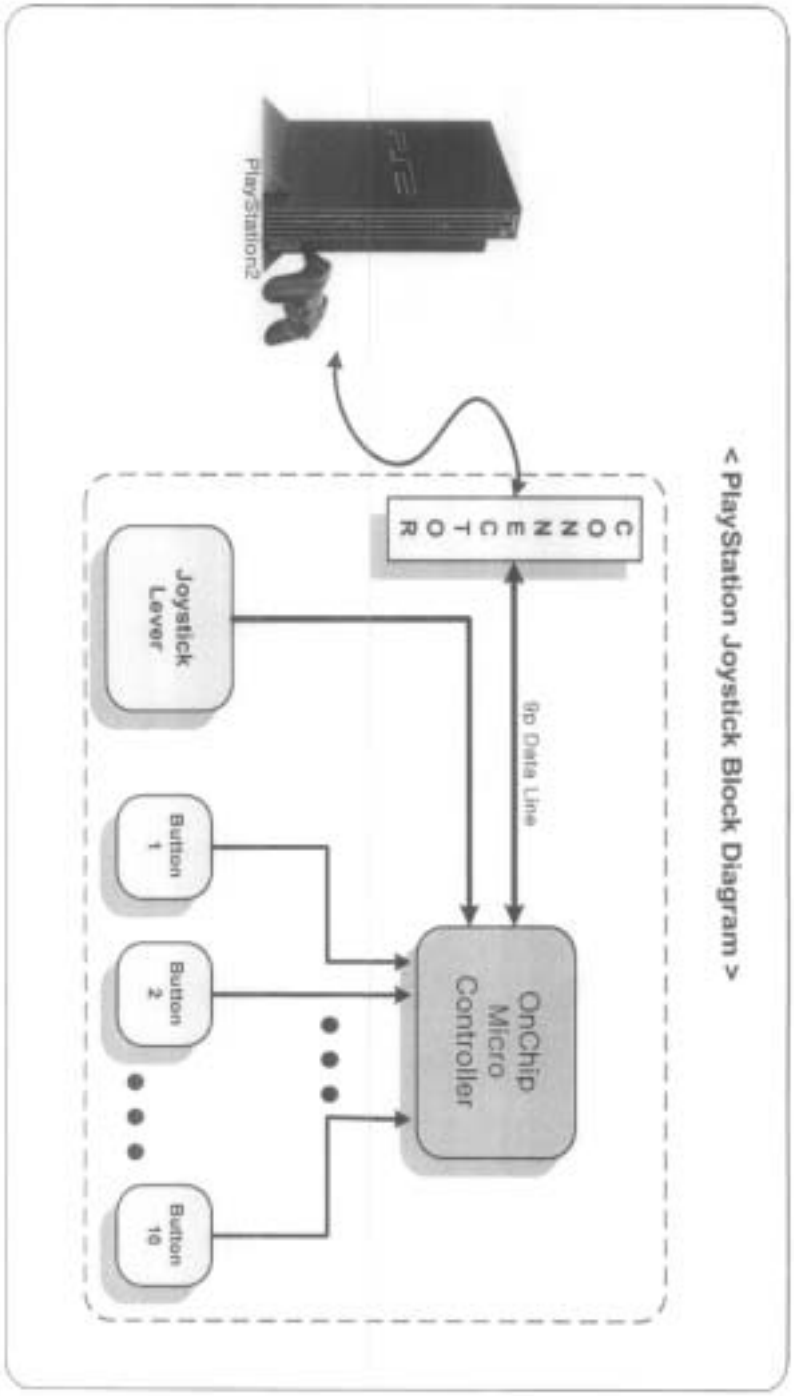
Meas Time:	1sec
Subranges:	25
Acc Margin:	60 dB



Appendix 2. Phorographs of EUT in side PCB



Appendix 3. Block diagram of EUT



Appendix 4. Circuit Diagram