

# TEST REPORT

Applicant: E-TECH Co., Ltd.

Model no.: IP60

Standards: MIL-STD-810F

SGS TESTING KOREA CO., LTD.

# General Description

Test report No. : AT-04-002

Type of equipment : FM Handheld Transceiver

Model No. : IP60

Applicant : E-TECH Co., Ltd.

Standard : MIL-STD-810F

Test result : Complies

We confirm that all test suites have been carried out from the samples submitted, in conformity with the specification of respective standards.

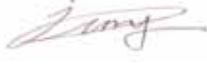
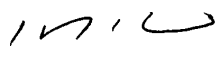
Without written authorization of SGS, it is not allowed to use a copy of any scripts from this test report.

Date of Test: July 08, 2004 ~ July 14, 2004

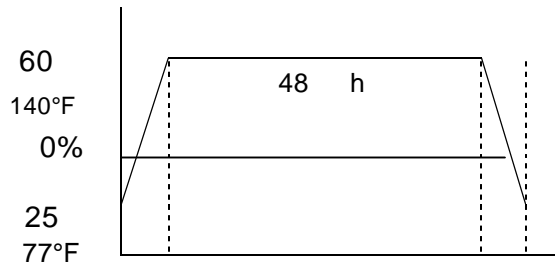
Tested by: Feel Jeong

Date of issued: July 15, 2004

Approved by: James Kwon

Recorded by	Chief Engineer	Feel Jeong 
Reviewed by	Technical Manager	James Kwon 

ITEM	<b>HIGH TEMPERATURE STORAGE TEST</b>
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CUSTOMER	E-TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.08 ~ 07.10
TEST SPEC	MIL-STD-810F 501.4 PROC1	PAGE	1
TEST CONDITION	1. Temperature: 60 (140°F) 2. Humidity: 0% 3. Test time: 48h 4. Check cycle: after test 5. Packing standard 6. Sample q, ty: 1set 7. Test equipment : Temperature and humidity chamber	 <p>The graph shows a temperature profile starting at 25°C (77°F), ramping up to 60°C (140°F), holding at 60°C (140°F) for 48 hours, and then ramping down to 25°C (77°F). The y-axis is labeled with 60, 140°F, 0%, 25, and 77°F. The x-axis represents time, with a 48h hold period indicated.</p>	

**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM
REMARK	-The appearance, function and performance must be ok.	

This is to certify that the sample submitted by client above has been tested.

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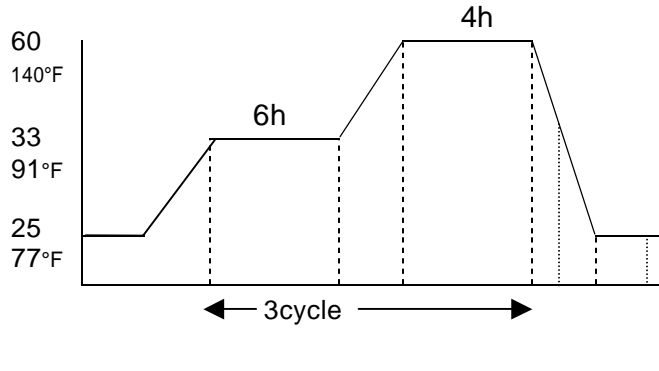
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ITEM	TEMPERATURE CYCLE TEST
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CUSTOMER	E - TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.10 ~ 07.12
TEST SPEC	MIL - STD - 810F 501.4 PROC1	PAGE	2

TEST CONDITION	1. Temperature: 33(77°F) ~ 60 (140°F) 2. Humidity: 0% 3. Test time: 40h 4. Check cycle: after test 5. Packing standard 6. Sample q, ty: 1set 7. Test equipment : Temperature and humidity chamber	
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**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM

REMARK	- The appearance, function and performance must be ok.
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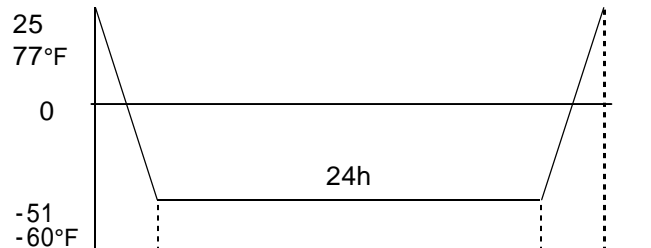
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ITEM	<b>LOW TEMPERATURE STORAGE TEST</b>
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CUSTOMER	E-TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.11 ~ 07.12
TEST SPEC	MIL-STD-810F 501.4 PROC1	PAGE	3

TEST CONDITION	1. Temperature: -51 (-60°F) 2. Humidity: 0% 3. Test time: 24h 4. Check cycle: after test 5. Packing standard 6. Sample q,ty: 1set 7. Test equipment : Temperature and humidity chamber	 <p>The graph shows a temperature profile starting at 25 (77°F), dropping to -51 (-60°F) for a 24-hour storage period, and then rising back to 25 (77°F). The y-axis is labeled with 25, 77°F, 0, -51, and -60°F. The x-axis is labeled with 24h.</p>
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**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM

REMARK	- The appearance, function and performance must be ok.
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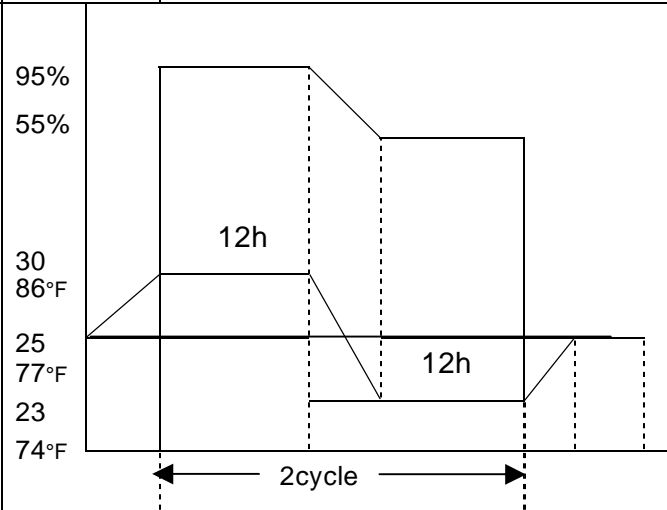
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ITEM	<b>TEMP&amp;HUMIDITY CYCLE TEST</b>
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CUSTOMER	E-TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.08 ~ 07.10
TEST SPEC	MIL-STD-810F 501.4 PROC1	PAGE	4

TEST CONDITION	1. Temperature: 23(74°F) ~ 30 (86°F) 2. Humidity: 55 ~ 95% 3. Test time: 53h 4. Check cycle: after test 5. Packing standard 6. Sample q,ty: 1set 7. Test equipment : Temperature and humidity chamber	 <p>The graph shows a temperature and humidity cycle. The y-axis represents temperature in °F (23, 25, 30, 74°F, 77°F, 86°F) and humidity in % (55%, 95%). The x-axis represents time. The cycle consists of two 12-hour periods. In the first 12-hour period, the temperature rises from 23°F to 30°F, stays at 30°F for 12h, then drops to 25°F. In the second 12-hour period, the temperature stays at 25°F for 12h, then rises to 30°F. Humidity is at 55% during the first 12h and rises to 95% during the second 12h. A double-headed arrow labeled '2cycle' spans the duration of both 12-hour periods.</p>
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**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM

REMARK	- The appearance, function and performance must be ok.
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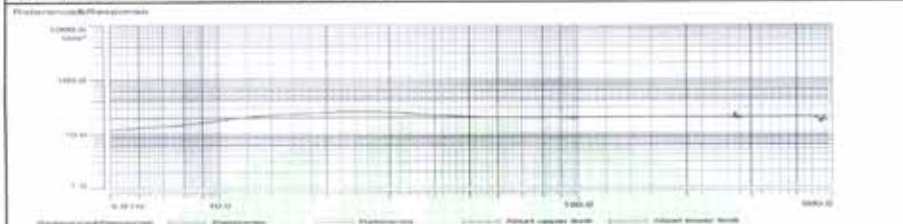
ITEM	VIBRATION TEST
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CUSTOMER	E-TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004.07.08~07.13
TEST SPEC	MIL-STD-810F 501.4 PROC1	PAGE	5
TEST CONDITION	1.Test axis: x,y,z 2.Acceleration: 19.6m/s <sup>2</sup> (2.0G) 3.Frequency: 5~500Hz 4.Test duration:180min/axis	TEST STATE	refer to the test result

**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM
REMARK	- The appearance, function and performance must be ok.	

MIL-STD-810F 514.4 PROC 1의 규격에 의하여 X, Y, Z각 축당 60분씩 5 - 500Hz의 주파수에 증력가속도 19.6m/s<sup>2</sup> (=2.0G)로 진동시험 후 동작에 이상이 없을 것.



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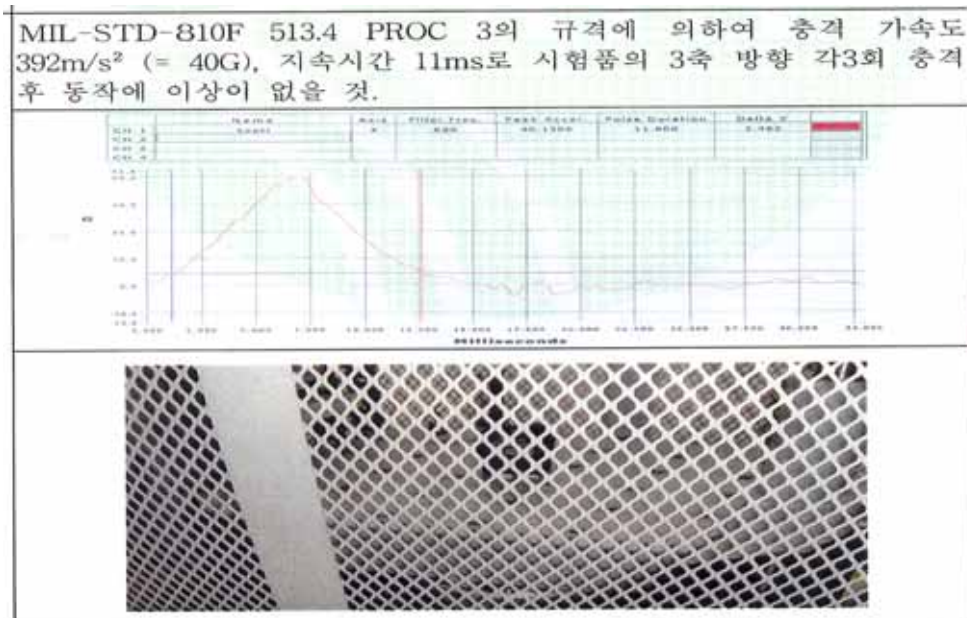
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ITEM	SHOCK TEST
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CUSTOMER	E-TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004.07.08~07.13
TEST SPEC	MIL-STD-810F 501.4 PROC1	PAGE	6
TEST CONDITION	1. Acceration: $392\text{m/s}^2$ (40G, s) 2. Duration: 11msec 3. Test axis: X, Y, Z axis 3 time	TEST STATE	refer to the test result
<b>TEST RESULT</b>			
SET NO.	TEST DURING	AFTER TEST	
IP60	-	NO PROBLEM	
REMARK	- The appearance, function and performance must be ok.		



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ITEM	<b>DROP TEST</b> <b>(NONE PACKING SET)</b>
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CUSTOMER	E - TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.14
TEST SPEC	MIL - STD - 810F 501.4 PROC1	PAGE	7
TEST CONDITION	1. Weight(none packing):266g 2.heigh of drop: 48inch 3.Drop section: 4corners (bottom side)	TEST STATE	refer to the test result
<b>TEST RESULT</b>			
<b>SET NO.</b>	<b>TEST DURING</b>	<b>AFTER TEST</b>	
IP60	-	NO PROBLEM	
REMARK	- The appearance, function and performance must be ok.		

This is to certify that the sample submitted by client above has been tested.

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ITEM	<b>DROP TEST</b> <b>(PACKING C/T)</b>
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CUSTOMER	E - TECH Co., Ltd.	TEST TEAM	R&TTE
PRODUCT	FM handheld Transceiver	TESTER	JEONG SEUNG PIL
MODEL	IP60	DATE	2004. 07.14
TEST SPEC	MIL - STD - 810F 501.4 PROC1	PAGE	8
TEST CONDITION	1. Weight(packaging):1.4kg 2.Heigh of drop: 120Cm 3.Drop section: 8corners,12edges, 6sides	TEST STATE	refer to the test result

**TEST RESULT**

SET NO.	TEST DURING	AFTER TEST
IP60	-	NO PROBLEM
REMARK	- The appearance, function and performance must be ok.	

This is to certify that the sample submitted by client above has been tested.

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## PHOTO

<b>CUSTOMER</b>	E-TECH Co., Ltd.	<b>MODEL</b>	IP60
<b>PRODUCT</b>	FM handheld Transceiver	<b>DATE</b>	2004.07.08~07.14



**SET UP PHOTO**



**IP60 PHOTO**

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