



**MIL STD 461E/F**

**TEST REPORT**

**For**

**19" Military LCD Monitor**

**Model Number:**

**WMRM919**

**Trade Name: iTech**

*Issued to*

**iTech Company LLC  
41758 Christy Street,  
Fremont CA 94538 USA**

*Issued by*

**Compliance Certification Services Inc.  
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# 1. TEST RESULT CERTIFICATION

**Applicant:** iTech Company LLC  
41758 Christy Street, Fremont CA 94538 USA

**Equipment Under Test:** 19" Military LCD Monitor

**Trade Name:** iTech

**Model Number:** WMRM919


**Date of Test:** August 18, 2010

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
MIL STD 461E/F	No non-compliance noted
Applicable Standard	Test Result
MIL STD 461E/F	
RS103, radiated susceptibility, electric field, 2 MHz to 40 GHz. (Test frequency 200 MHz to 18 GHz / 50V/m)	No non-compliance noted
Deviation from Applicable Standard	
N/A	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in MIL STD 461E/F. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

*Approved by:*

*Reviewed by:*



James Lee  
Section Manager  
Compliance Certification Services Inc.



Bruce Chen  
Senior Engineer  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	19" Military LCD Monitor
<b>Trade Name</b>	iTech
<b>Model Number</b>	WMRM919
<b>Model Discrepancy</b>	
<b>EUT Power Rating</b>	MB: iTech / R2A Panel LCD: 20.1 AUO / M201UN02-V6 Power Board: Wearnes/ WDS080121 RS232 Port: Link PC /Touch

**Remark:** for more details, please refer to the User's manual of the EUT.



### 3. TEST METHODOLOGY

All tests were performed in accordance with the procedure documented in MIL STD 461E/F.

### 4. INSTRUMENT AND CALIBRATION

#### 4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

#### 4.2 MEASUREMENT EQUIPMENT USED

##### Equipment Used for Emissions Measurement

RS103 (RS Chamber )				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Pulse Generator	Agilent	81101A	DE41B01423	10/31/2009
Signal Generator (250kHz-40GHz)	Agilent	E8257C	US42340383	07/14/2010
500 Watt 10kHz Amplifier	Amplifier Research	500A100A	300299	N.C.R.
500 Watts 80-1000MHz Amplifier	Amplifier Research	500W 1000A	320994	N.C.R.
250 Watts 1-2.5GHz Amplifier	Amplifier Research	250T1G3M1	320245	N.C.R.
300 Watts 2.5-7.5GHz Amplifier	Amplifier Research	300T2G8M1	320255	N.C.R.
250 Watts 7.5-18GHz Amplifier	Amplifier Research	250T8G18M1	320246	N.C.R.
RF Test System Controller	Amplifier Research	SC1000M3	306666	N.C.R.
Power Meter	Boonton	4232A-01-02	98501	10/30/2009
Power Sensor	Boonton	51013-4E	32864	10/30/2009
Power Sensor	Boonton	51013-4E	32862	10/30/2009
Bi-log Antenna	SCHWARZBECK	VULB9166	9166-1093	N.C.R.
Log-Periodic Antenna	Amplifier Research	AT1080	306709	N.C.R.
Horn	SCHWARZBECK	BBHA 9120D	530	N.C.R.
Field Probe(3M-18GHz)	Amplifier Research	FP7018	311430	07/10/2010
Dual Directional Coupler (80-1000MHz)	Amplifier Research	DC6180A	320285	N.C.R.
Dual Directional Coupler (0.8-4.2GHz)	Amplifier Research	DC7144A	313674	N.C.R.
Dual Directional Coupler (2-8GHz)	Amplifier Research	DC7280A	320524	N.C.R.
Dual Directional Coupler (7.5-18GHz)	Amplifier Research	DC7450M1	0320073	N.C.R.
Antenna Tower	Amplifier Research	TP2000	N/A	N.C.R.
Probe Stand	Amplifier Research	PS2000	N/A	N.C.R.
LISN	R&S	AT/A38	8448773	10/27/2009
Software	SW1006			



## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.  
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan  
Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721

No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan  
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.





## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 6.2 PHOTOGRAPHS OF EUT

See test photographs attached in Appendix 2 for the EUT's internal structure.

### 6.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	DELL	PP19L	GH645 A03	E2KWM3945ABG	N/A	N/A

**Remarks:**

- 1. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

### 6.4 TEST SETUP

The equipment under test was configured and operated in normal continuously. EUT tends to maximize its emission characteristics in a typical application for immunity test. The EUT was active during the immunity test measurements.



### 7. MIL STD 461E/F REQUIREMENTS

#### 7.1 RS103, radiated susceptibility, electric, 2 MHz to 40 GHz

##### LIMIT

The EUT shall not exhibit any malfunction, degradation of performance, or deviation from specified indications, beyond the tolerances indicated in the individual equipment or subsystem specification, when subjected to the radiated electric fields listed in Table VII and modulated as specified below. Up to 30 MHz, the requirement shall be met for vertically polarized fields. Above 30 MHz, the requirement shall be met for both horizontally and vertically polarized fields. Circular polarized fields are not acceptable.

Table VII. RS103 limits.

PLATFORM FREQ. RANGE		LIMIT LEVEL (VOLTS/METER)							
		AIRCRAFT (EXTERNAL OR SAFETY CRITICAL)	AIRCRAFT INTERNAL	ALL SHIPS (ABOVE DECKS) AND SUBMARINES (EXTERNAL)*	SHIPS (METALLIC) (BELOW DECKS)	SHIPS (NON- METALLIC) (BELOW DECKS)	SUBMARINES (INTERNAL)	GROUND	SPACE
2 MHz ↓ 30 MHz	A	200	200	200	10	50	5	50	20
	N	200	200	200	10	50	5	10	20
	AF	200	20	-	-	-	-	10	20
30 MHz ↓ 1 GHz	A	200	200	200	10	10	10	50	20
	N	200	200	200	10	10	10	10	20
	AF	200	20	-	-	-	-	10	20
1 GHz ↓ 18 GHz	A	200	200	200	10	10	10	50	20
	N	200	200	200	10	10	10	50	20
	AF	200	60	-	-	-	-	50	20
18 GHz ↓ 40 GHz	A	200	200	200	10	10	10	50	20
	N	200	60	200	10	10	10	50	20
	AF	200	60	-	-	-	-	50	20

KEY: A = Army  
N = Navy  
AF = Air Force

\* For equipment located external to the pressure hull of a submarine but within the superstructure, use SHIPS (METALLIC)(BELOW DECKS)





## **CLASSIFICATION OF FUNCTIONAL STATUS**

All classifications are for the total device/system functional status.

**Class A:** all functions of a device/system perform as designed during and after exposure to disturbance.

**Class B:** all functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after exposure is removed.

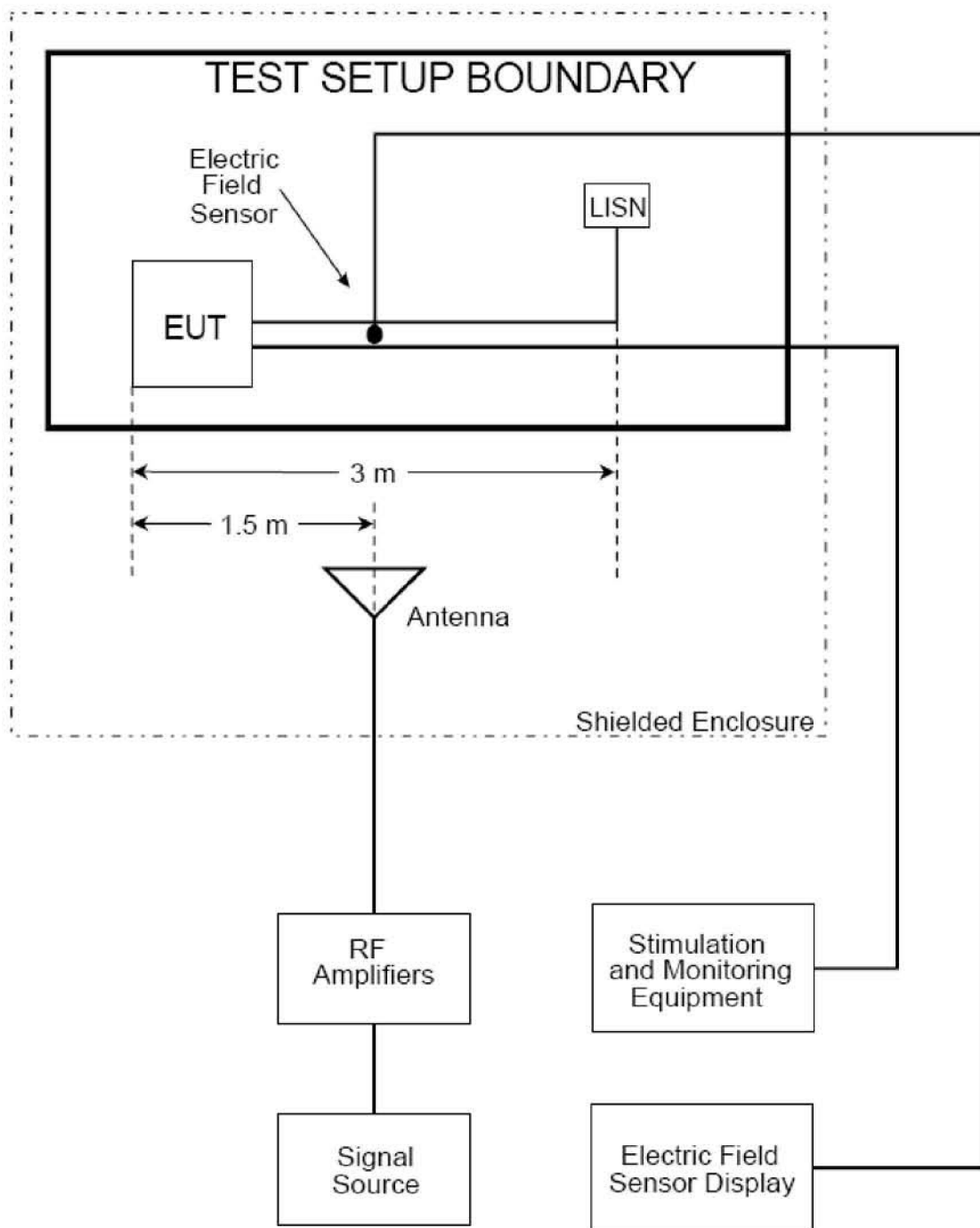
**Class C:** one or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed.

**Class D:** one or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device/system is reset by simple “operator/use” action.

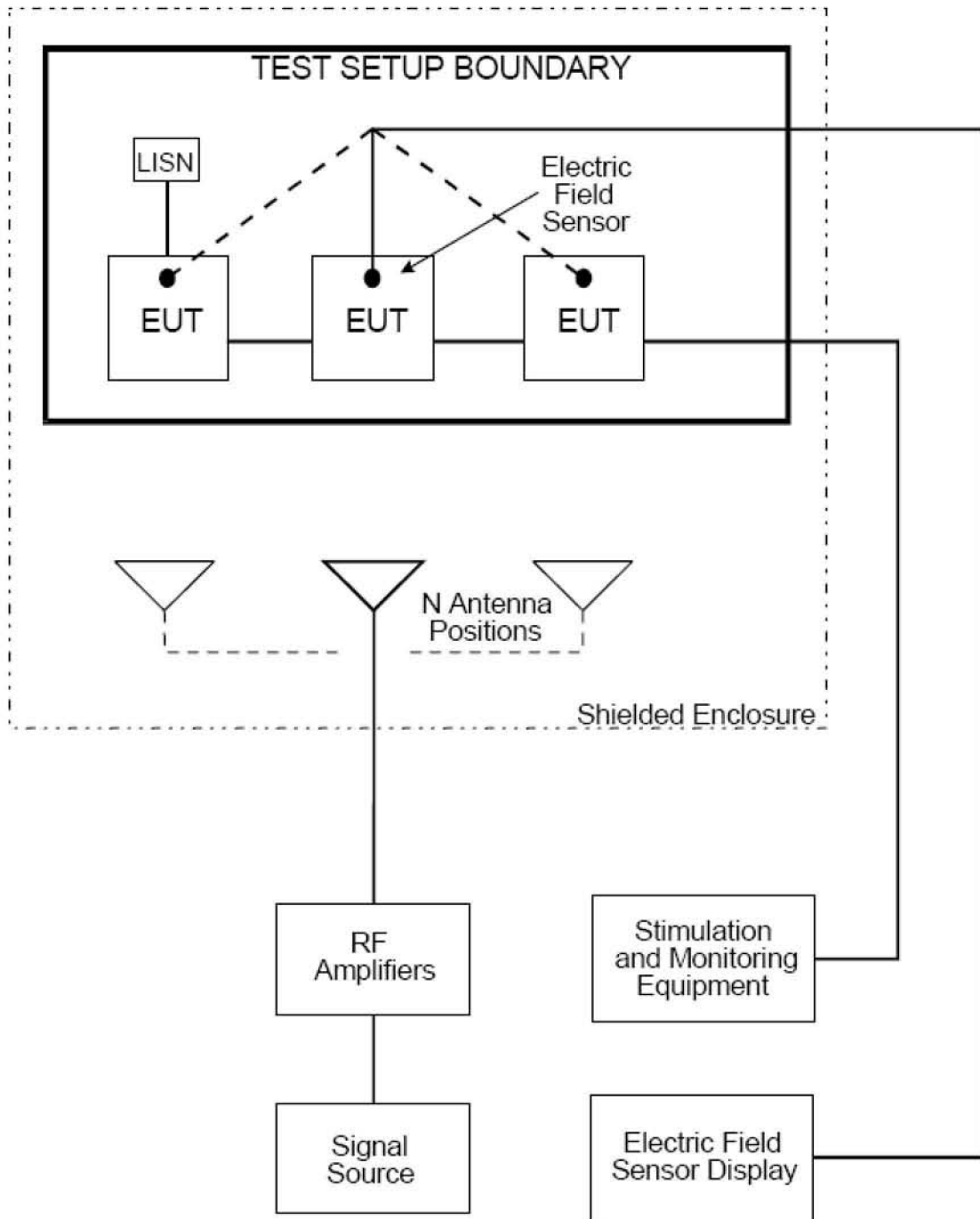
**Class E:** one or more functions of a device/system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device/system.

**NOTE:** The word “function” in this context refers only to the function performed by the electronic system.

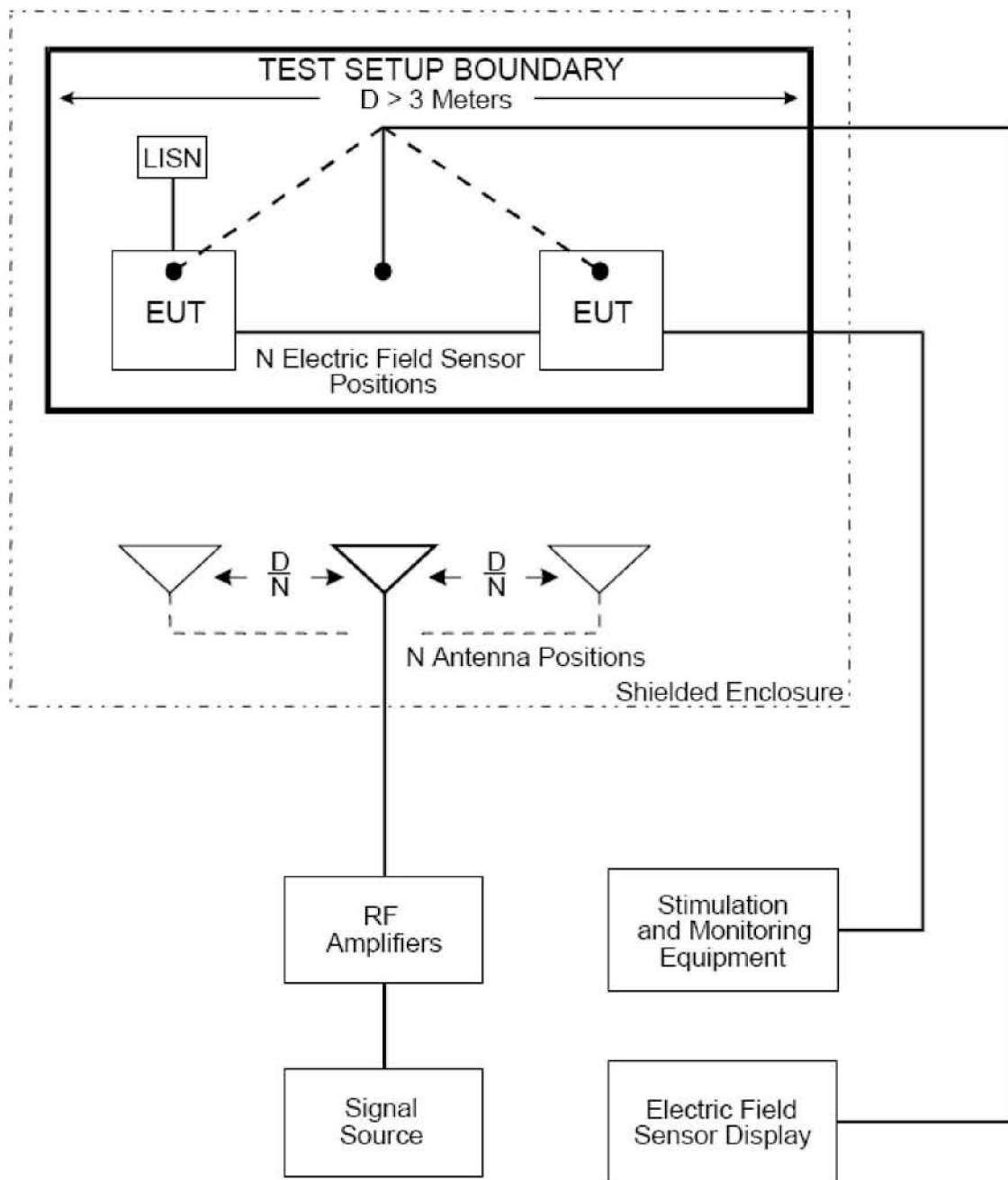
**TEST CONFIGURATION**



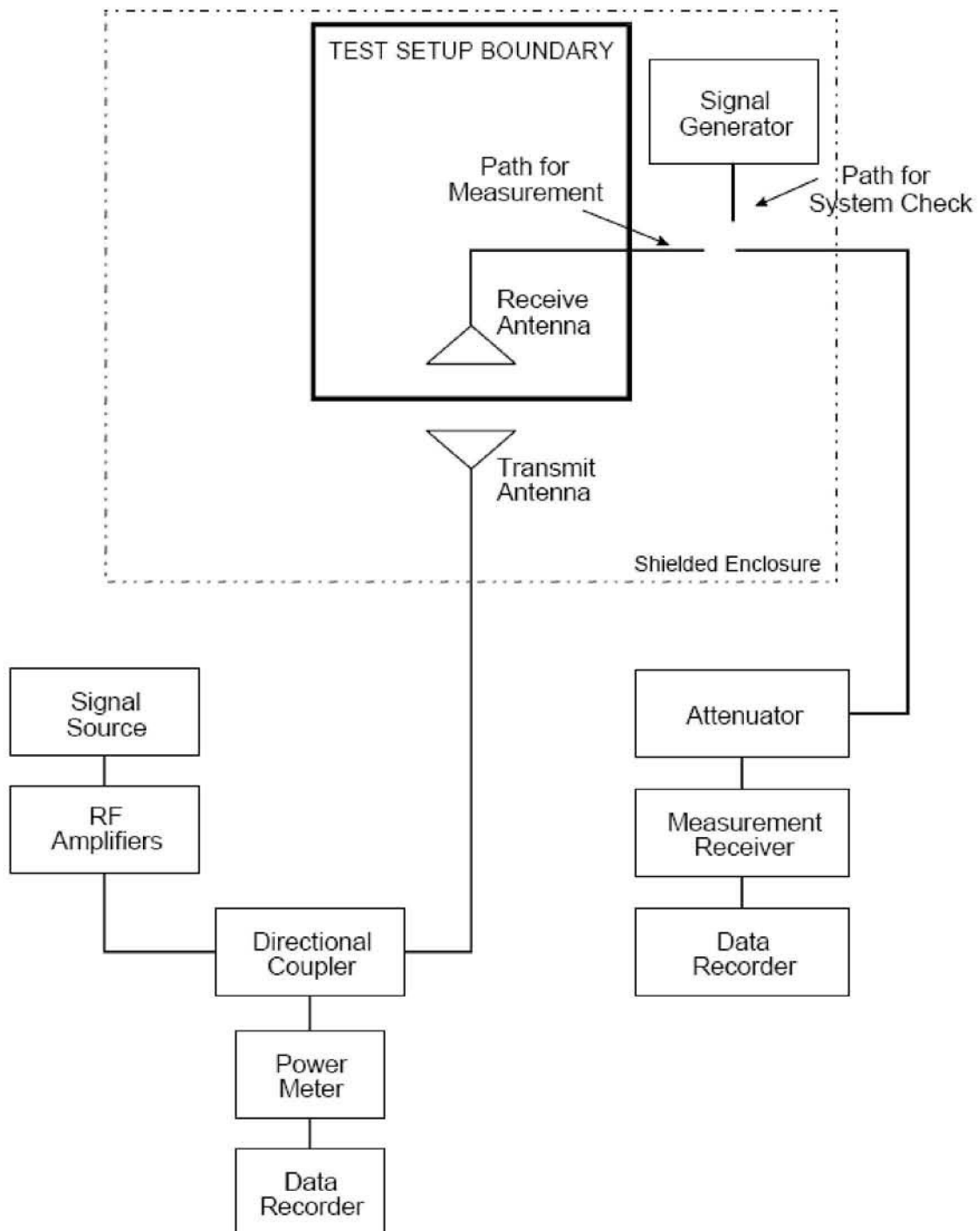
**FIGURE RS103-1. Test equipment configuration.**



**FIGURE RS103-2. Multiple test antenna locations for frequency > 200 MHz.**



**FIGURE RS103-3. Multiple test antenna locations for N positions,  $D > 3$  meters.**



**FIGURE RS103-4. Receive antenna procedure (1 to 40 GHz).**

**TEST PROCEDURE**

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL STD 461E/F.





## **TEST RESULTS**

*No non-compliance noted*

### **Test Data**

<b>Test Frequency (MHz)</b>	<b>Field Strength (V/m)</b>	<b>Radiate Signal</b>	<b>Polarity</b>	<b>Test Result</b>	<b>Remark</b>
200-1000	50	PM 1kHz/50%	H	A	Normal function
200-1000	50	PM 1kHz/50%	V	A	Normal function
1000-2500	50	PM 1kHz/50%	H	A	Normal function
1000-2500	50	PM 1kHz/50%	V	A	Normal function
2500-7500	50	PM 1kHz/50%	H	A	Normal function
2500-7500	50	PM 1kHz/50%	V	A	Normal function
7500-18000	50	PM 1kHz/50%	H	A	Normal function
7500-18000	50	PM 1kHz/50%	V	A	Normal function

## **8. APPENDIX I PHOTOGRAPHS OF TEST SETUP**

**RS103, radiated susceptibility, electric, 2 MHz to 40 GHz  
(Test frequency 200 MHz to 18 GHz)**

