

EMC TEST REPORT
for
SUPER DOGCHASER
Model No.: LS-977F
Multi-listing Model No. & Name:
LS-977 (Product name: ULTRASONIC DOGCHASER)

of

Applicant: LEAVEN ENTERPRISE CO., LTD.
Address: 5F, NO. 605, RUIGUANG RD., NEIHU DIST.,
TAIPEI 11492, TAIWAN

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

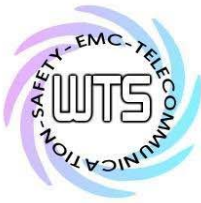
FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01



Report No.: W6R21601-15567-E-11



Worldwide Testing Services(Taiwan) Co., Ltd.

Details of applicant

Name : LEAVEN ENTERPRISE CO., LTD.
Street : 5F, NO. 605, RUIGUANG RD., NEIHU DIST.,
Town : TAIPEI 11492,
Country : TAIWAN
Telephone : +886-2-2659-1888
Fax : +886-2-2657-7825

Description of tested equipment

Type of product : SUPER DOGCHASER
Type identification : LS-977F
Brand name : ./.
Multi-listing model no. : LS-977 (Product name: ULTRASONIC DOGCHASER)
Power supply : Battery 9Vdc

Date of testing processing

Date of receipt of test item : January 20, 2016
Date of test : from January 21, 2016 to January 26, 2016
Other Information : None

Manufacturer (if different from applicant)

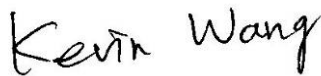
Name : ./.
Street : ./.
Town : ./.
Country : ./.

Test Standards

EN 61000-6-3 (2007+A1:2011+AC:2012),
EN 61000-6-1 (2007), (IEC/EN 61000-4-2 (2009) /-3 (2006+A2:2010)/-8(2010))

Technical responsibility for area of testing:

Tester:





Issue Date : February 15, 2016

February 15, 2016

Note:

1. The result of this test report is valid only in connection to the sample has been tested at the laboratory of Worldwide Testing Services (Taiwan) Co., Ltd.
2. This test report shall always be duplicated in full pages unless the written approval of the testing laboratory is obtained.

Registration number: W6R21601-15567-E-11



Worldwide Testing Services(Taiwan) Co., Ltd.

Testing laboratory

Location

Worldwide Testing Services (Taiwan) Co., Ltd.

OATS

No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 207,
Taiwan(R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228

FAX:886-2-2791-5046

Company

Worldwide Testing Services (Taiwan) Co., Ltd.

6F, NO. 58, LANE 188, RUEY-KUANG RD.

NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.

Name : ./.

Accredited number: ./.

Street : ./.

Town : ./.

Country : ./.

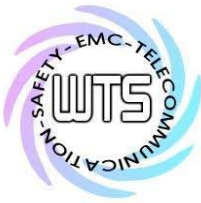
Telephone : ./.

Fax : ./.

Modification Information

No modification was made during the all test items been performed.

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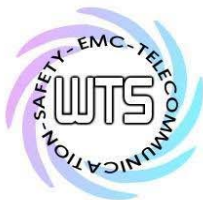
Electro - Magnetic Compatibility

Test – Result

1st test test after modification production test

Test Emission / Immunity			Done	Test passed	Test failed
Emission	Radiated Emission	EN 61000-6-3 (2007+A1:2011+AC:2012)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ESD	Electrostatic Discharge	IEC/EN 61000-4-2 (2009)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RF - Field	Radiated Immunity	IEC/EN 61000-4-3 (2006+A2:2010)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magn-Field	Magnetic field immunity	IEC/EN 61000-4-8 (2010)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

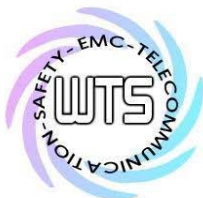
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Test equipment utilized

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2015/9/4	2016/9/3
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2015/7/13	2016/7/12
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2015/8/14	2016/8/13
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2015/9/7	2016/9/6
ETSTW-CE 024	IMPEDANCE STABILIZATION NETWORK	ISN T800	29454	TESEQ	2016/1/13	2017/1/12
ETSTW-CE 026	Current Probe	FCC-33-4	141522	FCC	2016/1/13	2017/1/12
ETSTW-CE 027	COUPLING AND DECOUPLING NETWORK	CDN ST08AS	38087	TESEQ	Function Test	
ETSTW-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2015/8/20	2016/8/19
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	Function Test	
ETSTW-CS 010	6 dB Attenuator	SA3N1007-06	None	AISI	Function test	
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2015/8/14	2016/8/13
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2015/9/4	2016/9/3
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2015/8/14	2016/8/13
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2015/9/8	2016/9/7
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2015/3/25	2016/3/24
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2015/6/16	2016/6/15
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	ETS-Lindgren	Function Test	
ETSTW-RE 029	Biconical Antenna	3109	33524	ETS-Lindgren	Function Test	
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2015/3/17	2016/3/16
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2015/9/11	2016/9/10
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2015/7/17	2016/7/16
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2015/9/11	2016/9/10
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2016/1/13	2017/1/12
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2015/3/19	2016/3/18
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2015/3/31	2016/3/30
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	

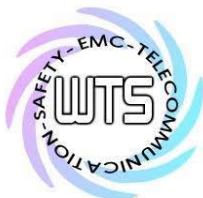
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ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2016/1/13	2017/1/12
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2015/3/19	2016/3/18
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2015/3/2	2016/3/1
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2015/3/2	2016/3/1
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2015/3/2	2016/3/1
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2015/6/8	2016/6/7
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2015/3/2	2016/3/1
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2015/5/14	2016/5/13
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2015/11/25	2016/11/24
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2015/4/6	2016/4/5
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2015/9/6	2016/9/5
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2016/1/13	2017/1/12
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2016/1/13	2017/1/12
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2015/3/2	2016/3/1
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2015/9/18	2016/9/17
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2016/1/13	2017/1/12
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2015/6/8	2016/6/7
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2015/8/11	2016/8/10
ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2015/8/11	2016/8/10
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2015/3/2	2016/3/1
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2015/8/11	2016/8/10
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2015/8/11	2016/8/10
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 133	EXA Signal Analyzer	N9010A	MY53470566	Agilent	2015/4/10	2016/4/9
ETSTW-RE 134	RF Vector Signal Generator	N5182B	MY53050664	Agilent	2015/4/10	2016/4/9
ETSTW-RE 135	RF Analog Signal Generator	N5171B	MY53050476	Agilent	2015/4/10	2016/4/9
ETSTW-RE 136	USB Wideband Power Sensor	U2021XA	MY54070006	Agilent	2015/3/17	2016/3/16
ETSTW-RE 137	USB Wideband Power Sensor	U2021XA	MY54020004	Agilent	2015/3/17	2016/3/16
ETSTW-RE 138	USB Wideband Power Sensor	U2021XA	MY54110003	Agilent	2015/3/17	2016/3/16
ETSTW-RE 139	USB Wideband Power Sensor	U2021XA	MY54110004	Agilent	2015/3/17	2016/3/16
ETSTW-RE 140	Simultaneous sampling DAQ	U2531A	TW54063509	Agilent	Function Test	
ETSTW-RE 143	Humidity Temperature Meter	TES-1260	110104623	TES	2015/9/9	2016/9/8

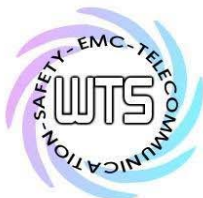
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ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	093	EMC-PARTNER	2015/8/14	2016/8/13
ETSTW-EMS 001	BASELSTRASSE 160 CH-4242 LAUFEN	CN-EFT1000	354	EMC-PARTNER	Function Test	
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014	None	Function Test	
ETSTW-EMS 003	EMC Immunity Test System	TRA2000IN6	579	EMC-PARTNER	2015/8/20	2016/8/19
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	Function Test	
ETSTW-EMS 010	Coupling De-coupling Network	CDN-UTP8	014	EMC-PARTNER	Function Test	
ETSTW-EMS 012	EM Injection Clamp	F-203I-23MM	476	FCC	2015/6/8	2016/6/7
ETSTW-EMS 016	EMF Tester	1390	071208732	TES	2015/8/14	2016/8/13
ETSTW-EMS 017	Multimeter	DM-1220	518614	HOLA	2015/8/14	2016/8/13
ETSTW-EMS 019	Electrostatic Discharge Simulator	ESS-2002	ESS06Y6300	NoiseKen	2015/9/4	2016/9/3
ETSTW-EMS 020	Humidity Temperature Meter	TES-1366	091011116	TES	2015/8/14	2016/8/13
ETSTW-EMS 022	Transient Test System	TRANSIENT -3000 S	1303	EMC-PARTNER	2015/8/20	2016/8/19
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	Function Test	
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2015/2/25	2016/2/24
ETSTW-RS 007	14" COLOR VIDEO MONITOR	HS-CM145A	0512011548	None	Function Test	
ETSTW-RS 009	SIGNAL GENERATOR	8648C	3642U01656	HP	2016/1/13	2017/1/12
ETSTW-RS 010	Broadband Field Meter	NBM-520	C-0195	Narda	2015/9/3	2016/9/2
ETSTW-RS 011	RF Power Amplifier	150W1000	0464490	AR	Function Test	
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2015/8/14	2016/8/13
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2015/3/5	2016/3/4
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40/12+9SS	3	WI	2016/1/13	2017/1/12
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2016/1/13	2017/1/12
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2016/1/13	2017/1/12
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2016/1/13	2017/1/12
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2015/9/16	2016/9/15
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S_Cable 7)	238093	HUBER+SUHNER	2015/5/14	2016/5/13
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S_Cable 11)	209953	HUBER+SUHNER	2015/5/14	2016/5/13
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2015/9/11	2016/9/10
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	N TYPE To SMA Cable	Cable 012	None	JYE BAO CO.,LTD.	2015/9/11	2016/9/10
ETSTW-Cable 063	N type Cable (5m)	RG214/U	1249271	HUBER+SUHNER	Function Test	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2015/2/25	2016/2/24
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2015/2/25	2016/2/24
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2015/2/25	2016/2/24
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2015/2/25	2016/2/24

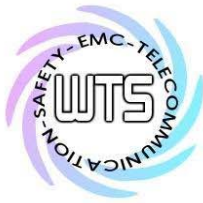
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ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2015/4/23	2016/4/22
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2015/3/19	2016/3/18
ETSTW-Cable 023	BNC Cable	BNC Cable 3	None	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 024	BNC Cable	BNC Cable 4	None	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 025	BNC Cable	BNC Cable 5	None	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2015/3/2	2016/3/1
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2015/5/14	2016/5/13
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2015/3/2	2016/3/1
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S_Cable 10)	238092	HUBER+SUHNER	2015/11/25	2016/11/24
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2015/5/14	2016/5/13
ETSTW-Cable 062	N type Cable (5m)	RG214	None	DRAKA	Function Test	
ETSTW-Cable 042	Microwave Cable	SUCOFLEX 104 (S_Cable 22)	279847	HUBER+SUHNER	Function Test	
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2015/11/25	2016/11/24
ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2015/11/25	2016/11/24
ETSTW-Cable 051	BNC Cable	BNC Cable 6	None	JYE BAO CO.,LTD.	2015/3/10	2016/3/9
ETSTW-Cable 052	BNC Cable	Clamp Cable	None	Schwarz beck	2015/3/10	2016/3/9
ETSTW-Cable 053	N TYPE To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2015/3/19	2016/3/18
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2015/3/19	2016/3/18
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.20 Firmware Version 2.20	
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMG	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	
WTSTW-SW 004	Agilent.EN300328.V181.Test	Agilent	None	Agilent	Version 1.0.0.0	
WTSTW-SW 005	Signal studio	Agilent	None	Agilent	Version 1.0.0.1	

Registration number: W6R21601-15567-E-11



Radiated Emission (EN 61000-6-3)

Test Equipment

a) TRILOG Super Broadband test Antenna (VULB 9160)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-RE 049

b) EMI TEST RECEIVER (ESVS 10)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-RE 005

Test Procedures

- Test configuration

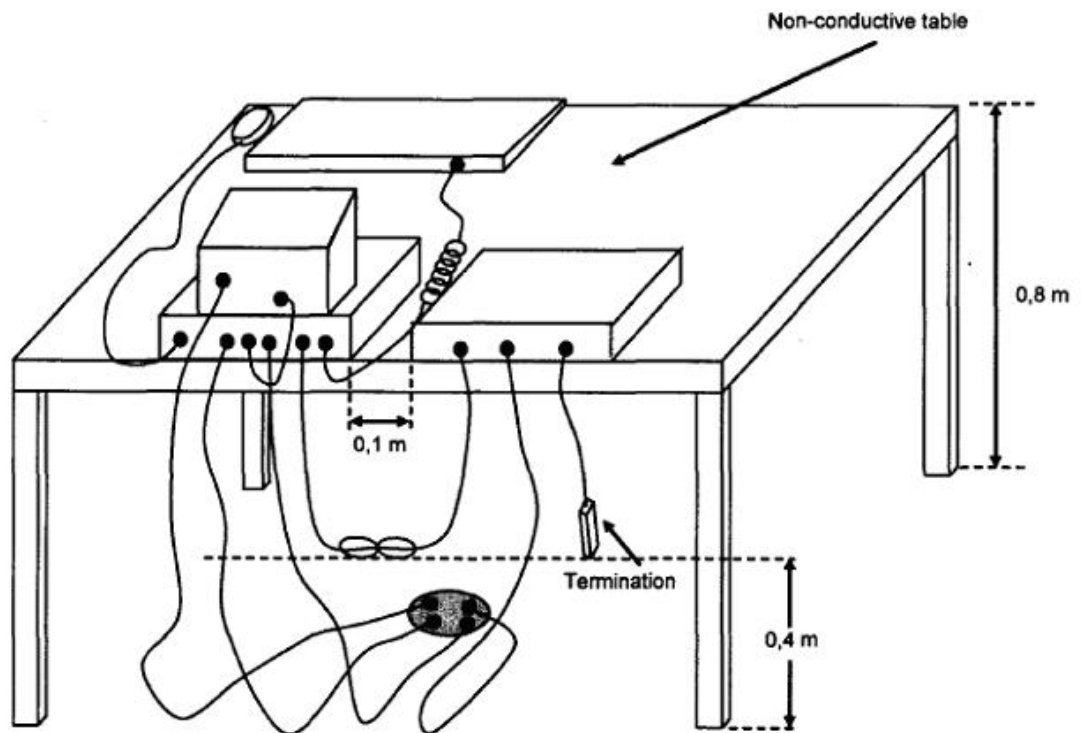
The test configuration corresponds to the standard EN 61000-6-3. The equipment under test is placed on a non metallic table with 0.8m height.

The power supply and the RF connection points are close to the equipment under test at the floor inside a connection box. The cables to this connection box are shielded and below the double floor. The receiving antenna is placed in a height at 1.0m to 4.0m, in a distance of 10m (below 1GHz). The measurement receiver is placed in a special room. (see picture 1) The observation of the equipment under test is realized by 3 video cameras and by a microphone.

- Test parameters and marginal conditions

The test is carried out with horizontal and vertical polarisation of the antenna in a frequency range of 30 MHz to 1000 MHz. Further information please find in the test protocol.

Radiated Emission according to EN 61000-6-3



Picture 1



Electrostatic Discharge

Test Equipment

a) Electrostatic Discharge Simulator (ESS-2002)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-EMS 019

b) Frequency Converter (YF-6020)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-EMS 002

c) EMC Immunity Test System (TRA2000IN6)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-EMS 003

Test Procedures

- Test configuration

The test configuration is in correspondence to the standard IEC/EN 61000-4-2. The equipment under test is placed on a wooden table with one metal plate on its top and one metal plate under the table, which is grounded. Both plates are connected with two 470 k Ω resistor in series. (see picture 2)

- Test parameters and marginal conditions

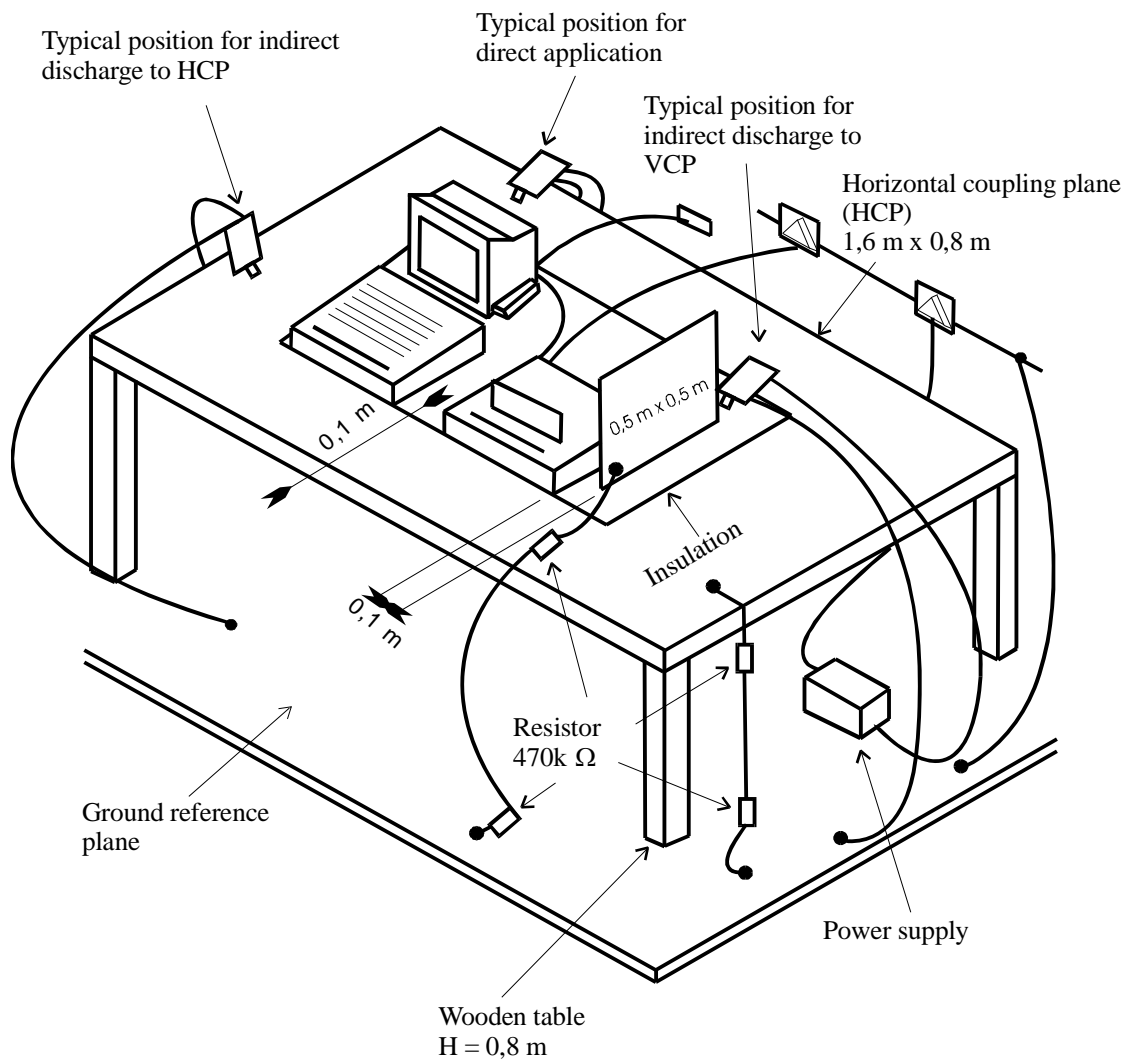
The test is carried out with $\pm 2\text{kV}$, $\pm 4\text{kV}$ contact discharge and $\pm 2\text{kV}$, $\pm 4\text{kV}$ and $\pm 8\text{kV}$ air discharge.

Time between two discharges ≥ 1 second

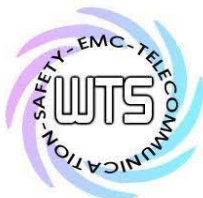
Ten discharges for every point every voltage and polarity

The tested points please find in the test protocol.

Electrostatic Discharge according to EN 61000 - 4 - 2



Picture 2



RF Electromagnetic Field (80-1000, 1400-2000, 2000-2700 MHz)

Test Equipment

- a) Biconical Antenna (3109)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RE 029
- b) Log-Periodic Dipole Array Antenna (3148)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RE 028
- c) MICROWAVE HORN ANTENNA (AT4002A)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RE 020
- d) RF Power Amplifier (30S1G3)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RS 003
- e) SIGNAL GENERATOR (8648C)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RS 009
- f) RF Power Amplifier (150W1000)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RS 011
- g) Broadband Field Meter (NBM-520)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RS 010
- h) Millivoltmeter (URV 55)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RE 032
- i) Power Sensor (URV5-Z4)
For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-RE 034

Test Procedures

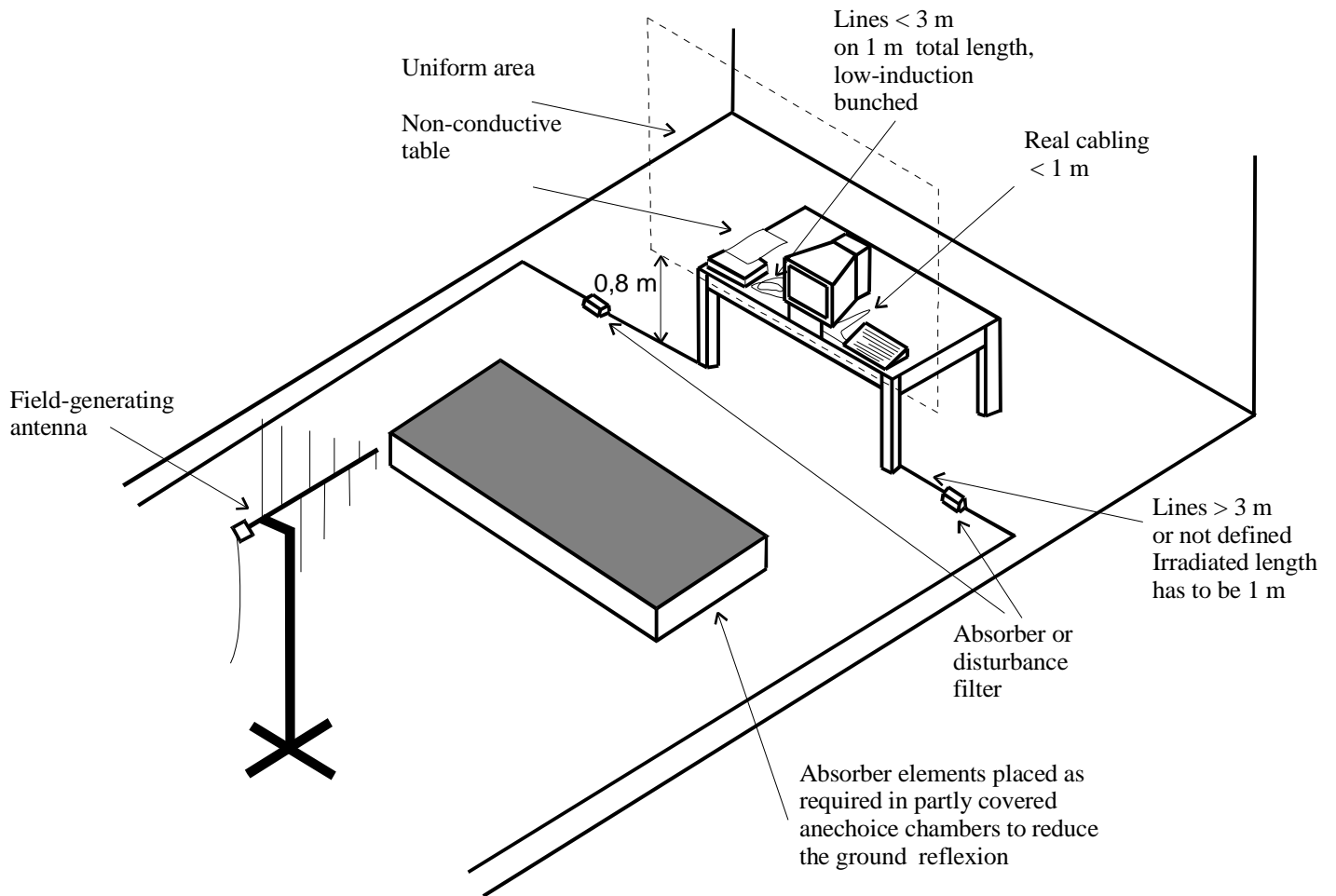
- Test configuration

The test configuration is contained inside of a shielded chamber and corresponds to the standard IEC/EN 61000-4-3. The equipment under test is placed in the facility on a wooden table 0.8m high on the centre axis of the chamber. The power supply and the RF connection points are close to the equipment under test at the floor of the chamber inside a connection box. The cables to this connection box are shielded and below the double floor. The transmitting antenna is placed in a height of 1.5m, in a distance of 3.0m. The RF-generators are placed in a special room adjacent to the chamber. (see picture 3) The observation of the equipment under test is realized by 3 video cameras and by a microphone. In order to establish the severity of the test for EUT an wires which must be tested close to the earth reference plane or which have larger sides than 1.5m x 1.5 m, the intensity of the field is also recorded at 0.4 m height, and for the full width and height of the EUT.

- Test parameters and marginal conditions

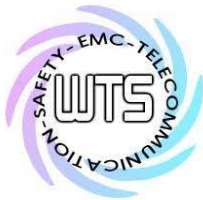
The tests are carried out with field strength by 3 V/m and 1 V/m (measured in the un-modulated field) with amplitude modulated signal by a depth of 80 % by a sinusoidal audio signal of 1 kHz. The logarithmic step was 1% and the dwell time was 1s dependent of the EUT cycle time. Further information please find in test protocol.

RF - Field according to EN 61000 - 4 - 3



Picture 3

Registration number: W6R21601-15567-E-11



Power frequency magnetic field

Test Equipment

a) Magnetic Field Antenna (MF1000-1)

For your reference please find it in our test equipment list at page 4 to 7 as number: ETSTW-EMS 009

b) Frequency Converter (YF-6020)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-EMS 002

c) EMF Tester (1390)

For your reference please find it in our test equipment list at page 4 to 7 as number : ETSTW-EMS 016

Test Procedures

- Test configuration

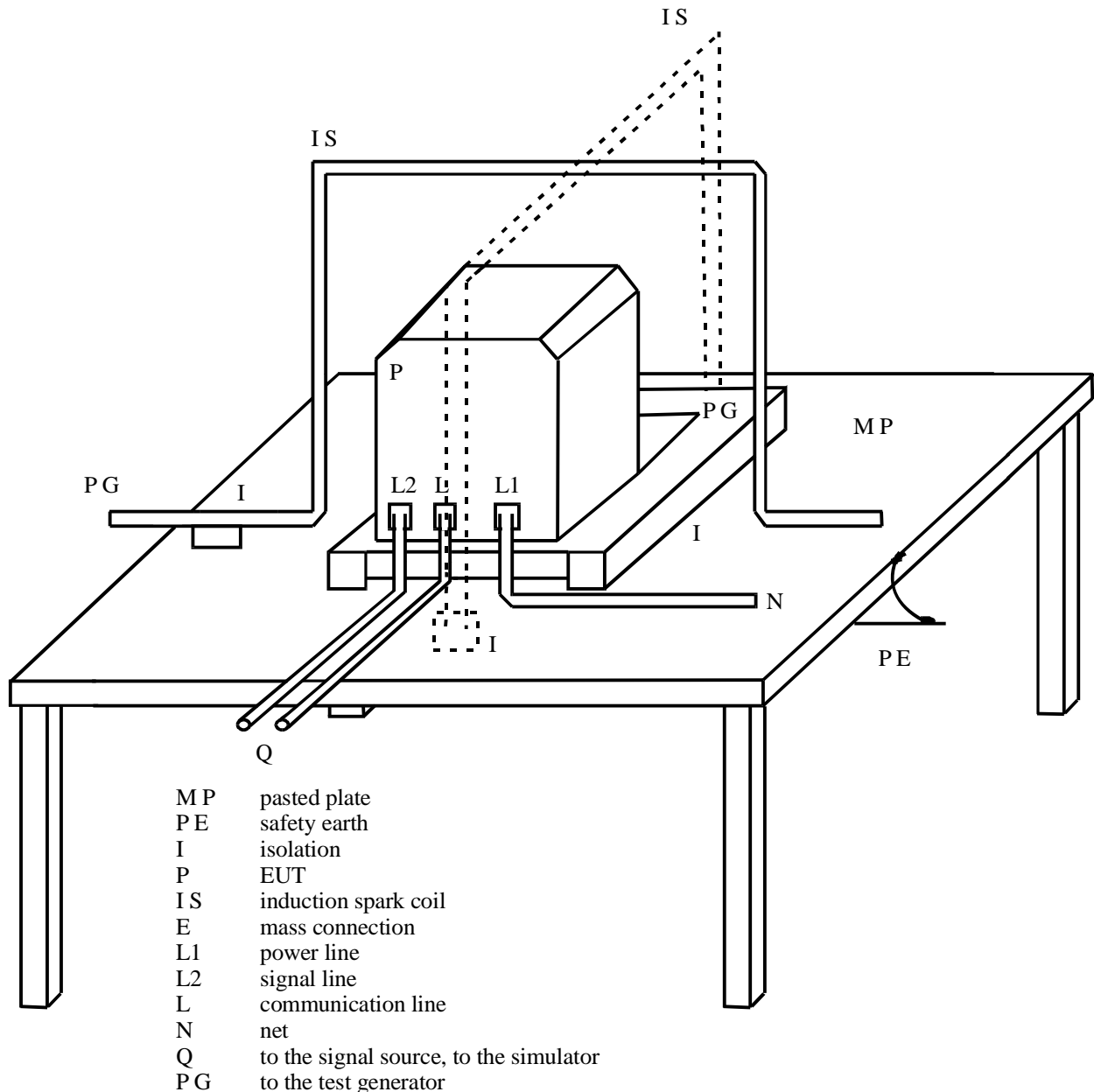
The test configuration is in correspondence to the standard IEC/EN 61000-4-8. The equipment under test shall be arranged and connected to satisfy its functional requirements, and shall be placed at the center of the coil system. (see picture 4)

The cables supplied by the equipment manufacturer shall be used or, in their absence, suitable alternative cables of the type appropriate to the signals involved shall be used.

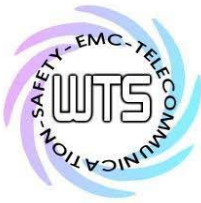
- Test parameters and marginal conditions

The tests are carried out with a frequency of 50/60 Hz and a magnetic field of 3 A/m (r.m.s.). Additional information please find in the test protocol.

Example for set-up for immunity test to
magnetic field according to
EN 61000-4-8

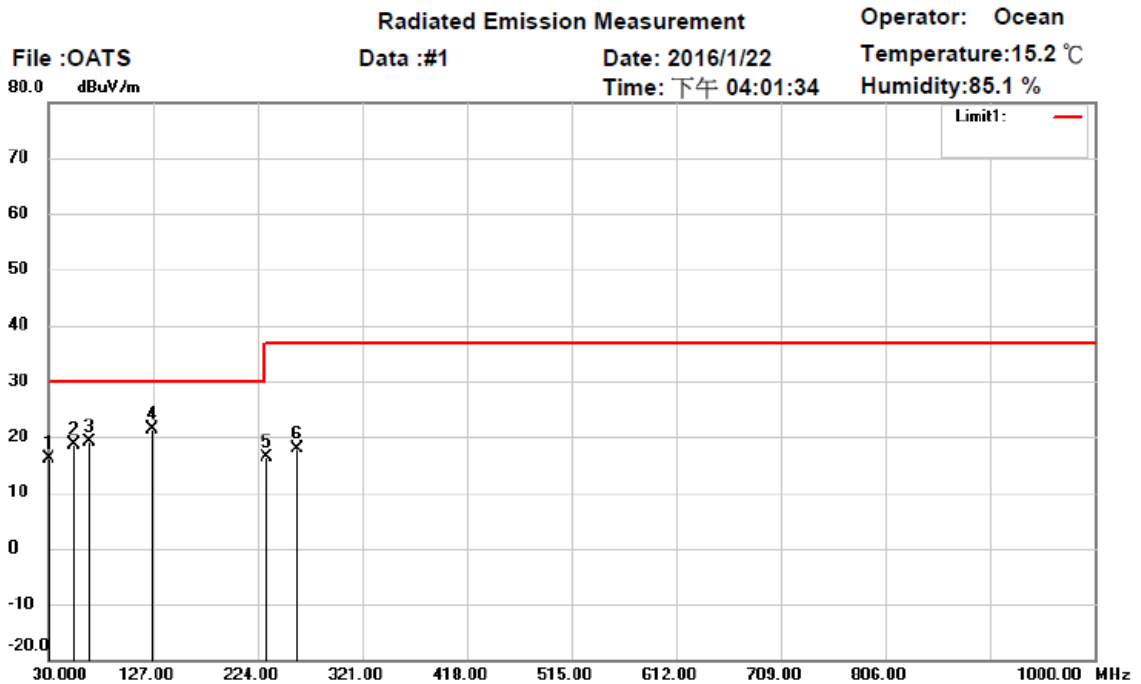


Picture 4



Radio Noise Field Strength

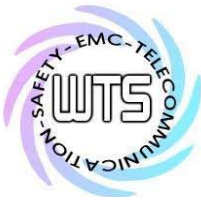
Emission



Site : Open Area Test Site
 Condition : CISPR22 RE-Class B 10M Polarization: *Horizontal*
 EUT : W6R21601-15567 Power : 9 Vd.c.
 M/N: Distance: 10m
 Test Mode :
 Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	30.0850	3.70	QP	12.34	16.04	30.00	300	50	-13.96	
	53.1800	5.00	QP	13.60	18.60	30.00	300	160	-11.40	
	66.9850	6.70	QP	12.54	19.24	30.00	310	105	-10.76	
*	125.1700	7.60	QP	13.70	21.30	30.00	325	260	-8.70	
	230.8500	2.80	QP	13.58	16.38	37.00	340	170	-20.62	
	260.2700	2.90	QP	15.00	17.90	37.00	350	80	-19.10	

Registration number: W6R21601-15567-E-11



Worldwide Testing Services(Taiwan) Co., Ltd.

Radiated Emission Measurement

Operator: Ocean

File :OATS
80.0 dBuV/m

Data :#2

Date: 2016/1/22

Temperature:15.2 °C

Time: 下午 04:05:42

Humidity:85.1 %



Site : Open Area Test Site

Condition : CISPR22 RE-Class B 10M

EUT : W6R21601-15567

M/N:

Test Mode :

Note :

Polarization: **Vertical**

Power : 9 Vd.c.

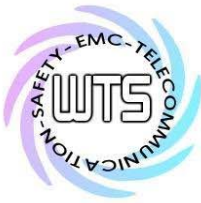
Distance: 10m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	34.1150	7.60	QP	12.55	20.15	30.00	100	360	-9.85	
	52.5300	3.60	QP	13.64	17.24	30.00	100	150	-12.76	
	84.8100	4.20	QP	9.43	13.63	30.00	105	200	-16.37	
*	138.9900	9.20	QP	14.77	23.97	30.00	150	175	-6.03	
	201.8500	5.30	QP	12.14	17.44	30.00	165	45	-12.56	
	260.8600	2.60	QP	15.01	17.61	37.00	135	120	-19.39	

Note:

1. Correction Factor = Antenna factor + Cable loss - Preamplifier
2. The formula of measured value as: Test Result = Reading + Correction Factor
3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. Measurement uncertainty below 1GHz: 30-1000 MHz = ± 5.30 dB ;
Measurement uncertainty above 1GHz: 1-18 GHz = ± 4.78 dB, 18-40 GHz = ± 2.44 dB ;
Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Registration number: W6R21601-15567-E-11



Electrostatic Discharge

ESD

Standard : IEC/EN 61000 - 4 - 2

Device : LS-977F

Date : January 25, 2016

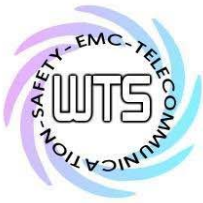
Temperature : 17.8 °C
Pressure : 990 hPa
Rel. humidity: 46.9 %

Test point	Table (T) Floor (F)	Contact (C) Air (A)	Voltage (kV)	Polarity (+/-)	Performance criteria
Housing	T	A	2, 4, 8	+/-	A
Indirect	T	C	2, 4	+/-	A

ESD discharge points



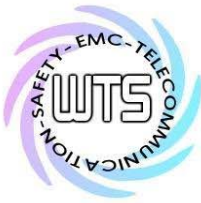
Registration number: W6R21601-15567-E-11



Performance criteria:

- A: Normal performance within the specification.
- B: Temporary degradation or less of function or performance which is self recoverable
- C: Temporary degradation or loss of function or perform. which requires. operate intervention or system reset

NA: Not Applicable



Interference Immunity Against Electromagnetic Irradiation

RF Field

Standard : IEC/EN 61000 - 4 - 3

Device : LS-977F

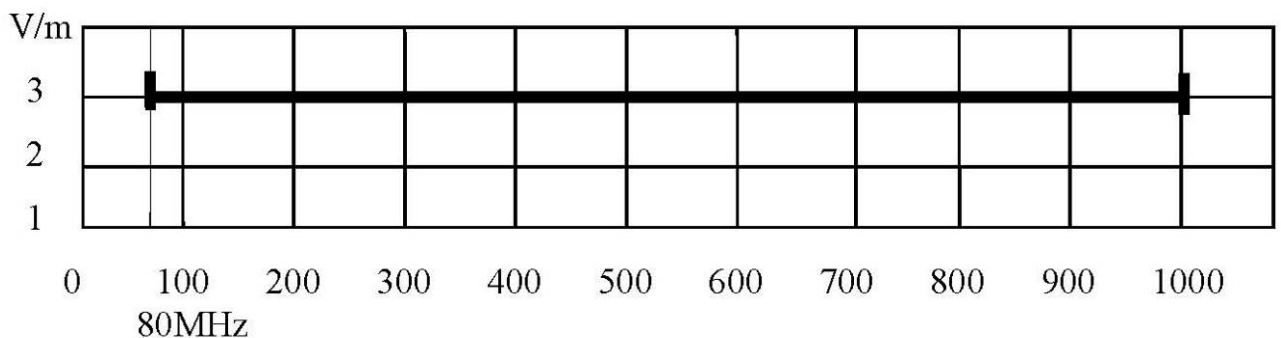
Date : January 25, 2016

Temperature : 17.8 °C
Pressure : 990 hPa
Rel. humidity: 46.9 %

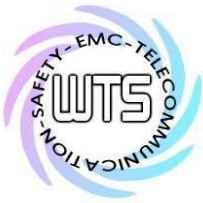
Test equipment : Anechoic Chamber, Generator SMG (R&S), Monitoring System, Amplifier 10W1000/150L (ar), Antenna SAS-200/521 (AHS)

Severity Level : 2 (3 V/m)

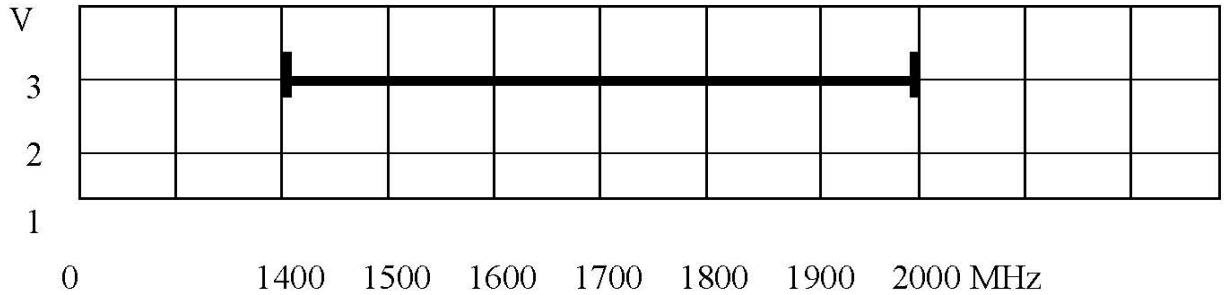
Modulation Frequency : 1 kHz (80%AM)



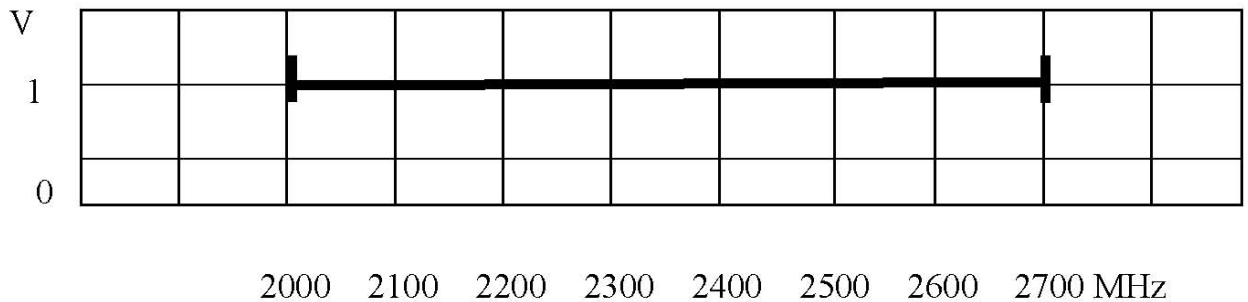
Registration number: W6R21601-15567-E-11



Severity Level : 2 (3V/m) Modulation Frequency : 1kHz (80%AM)



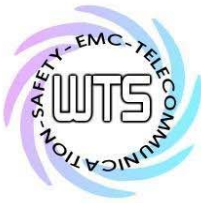
Severity Level : 1 (1V/m) Modulation Frequency : 1kHz (80%AM)



Performance criteria:

- A : No loss of performance or function
- B : Temporary loss of function or performance which is self recoverable
- C : Temporary loss of function or perform. which req. operator intervention or system reset
- D : Loss of function which is not recoverable

Registration number: W6R21601-15567-E-11



Magnetic field frequency
Magn-Field

Standard : IEC/EN 61000 - 4 - 8

Device : LS-977F

Date : January 25, 2016

Temperature : 17.8 °C
Pressure : 990 hPa
Rel. humidity: 46.9 %

Magnetic field direction	Passed	Failed	Performance criteria
X-Axis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A
Y-Axis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A
Z-Axis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A

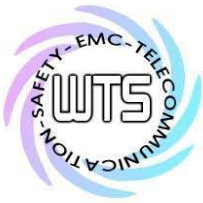
Explanation: The Magnetic field frequency tests in 50/60 Hz.

The Continuous magnetic field strength is 3 A/m.

Performance criteria:

- A : No loss of performance or function
- B : Temporary loss of function or performance which is self recoverable
- C : Temporary loss of function or perform. which req. operate. intervention or system reset
- D : Loss of function which is not recover

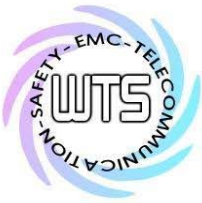
Registration number: W6R21601-15567-E-11



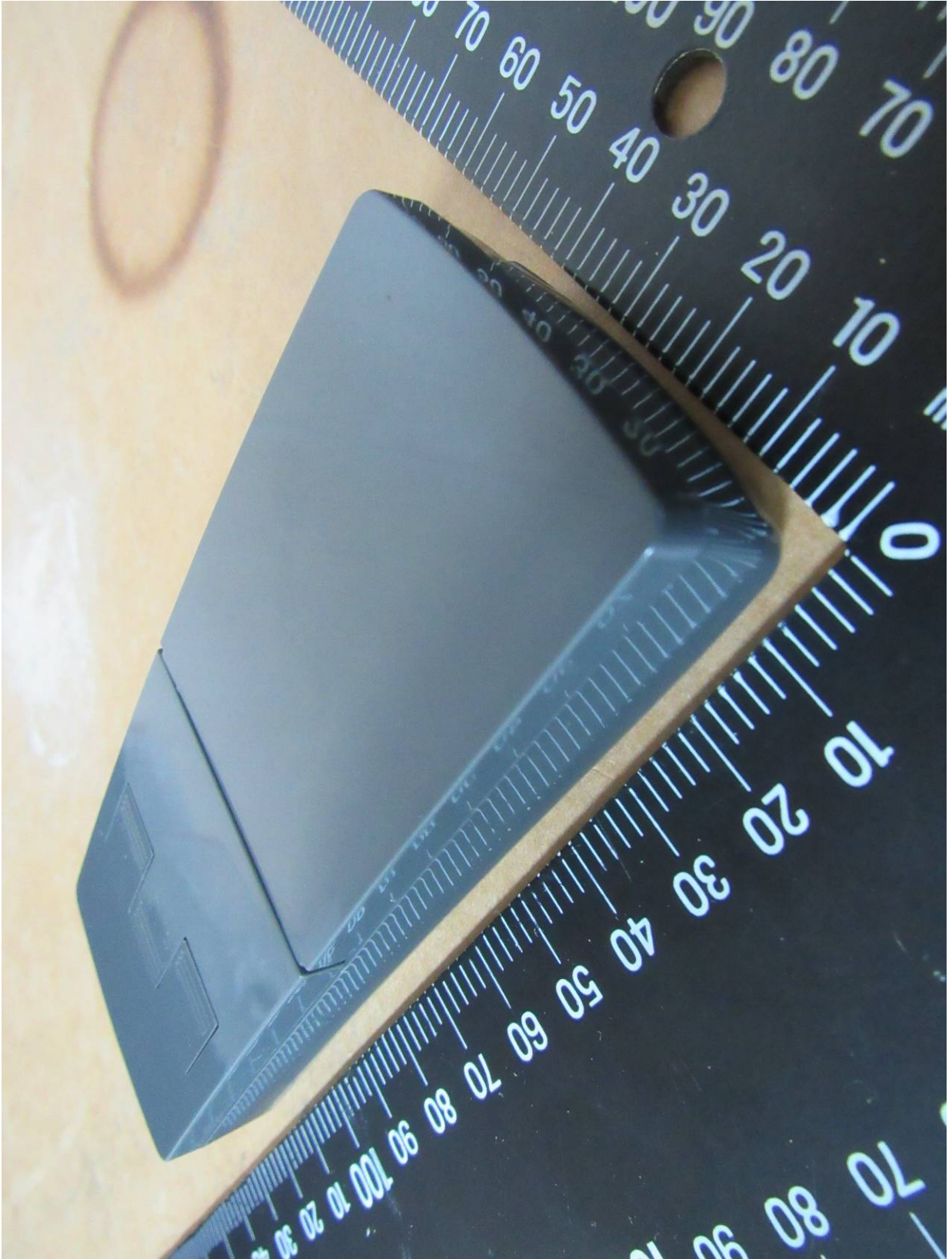
Appendix

Photos

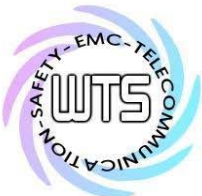
1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission
4. Set Up Photo of ESD
5. Set Up Photo of RF-Field
6. Set Up Photo of Magn-Field



External Photos



Registration number: W6R21601-15567-E-11

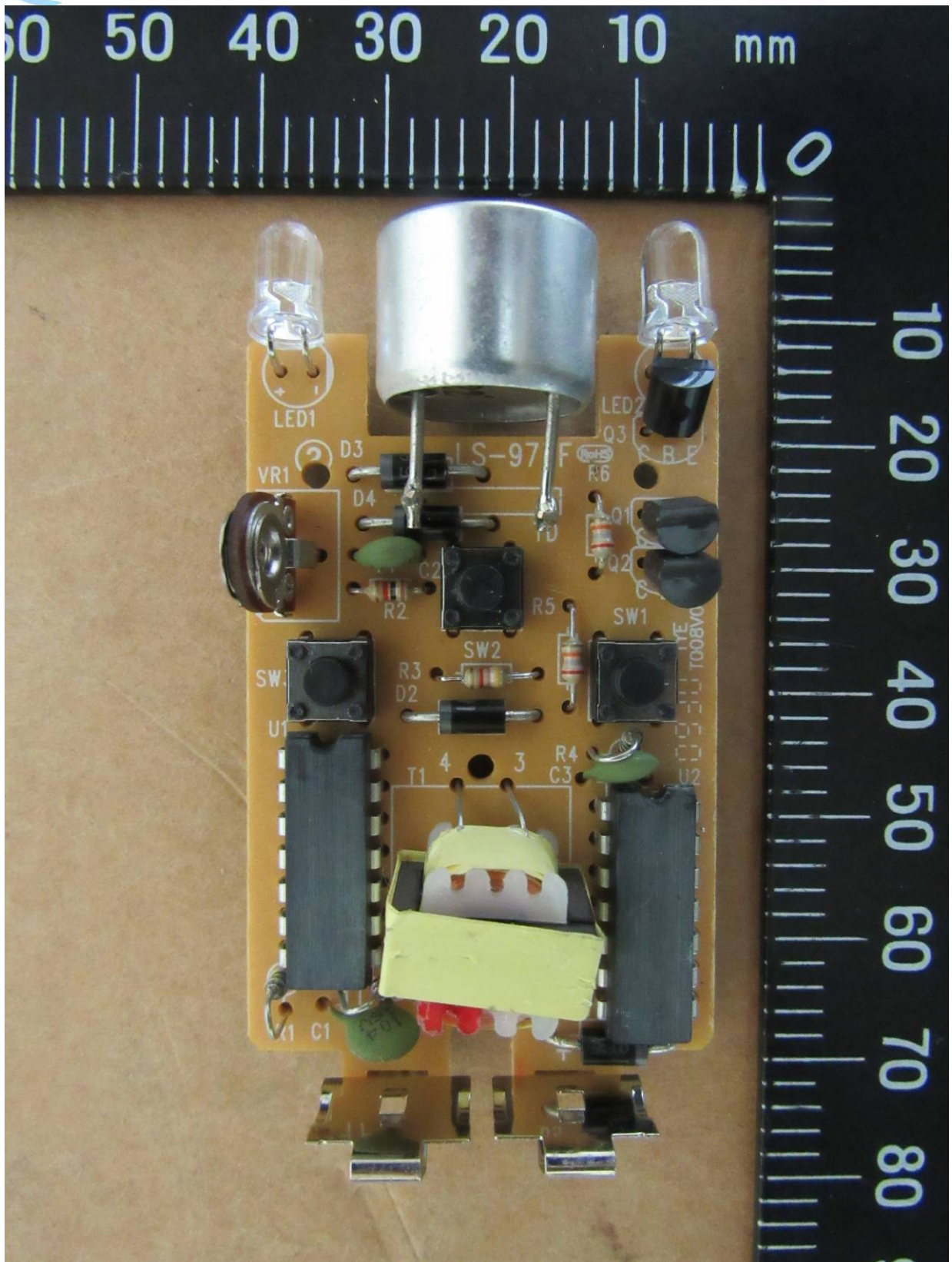


Registration number: W6R21601-15567-E-11

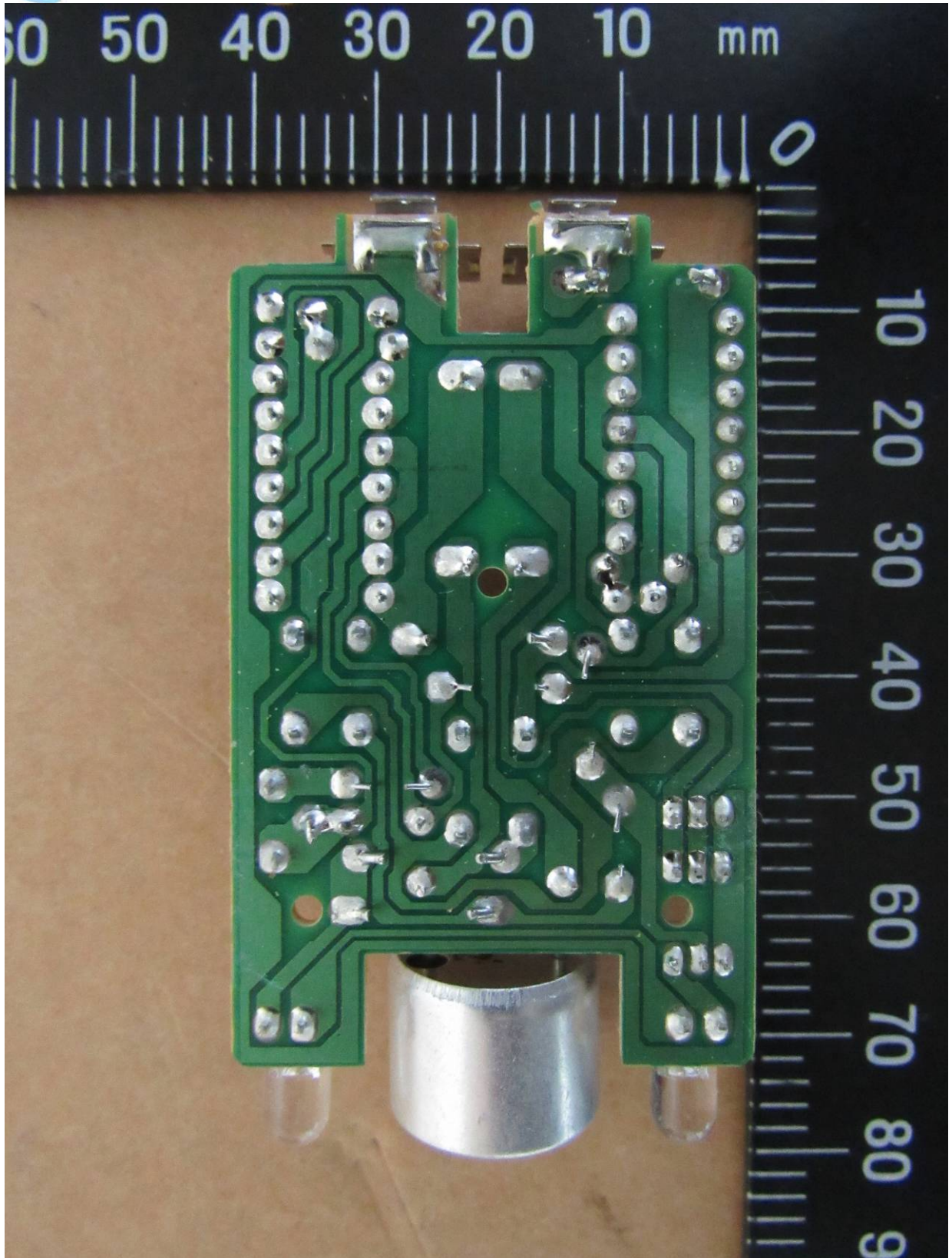
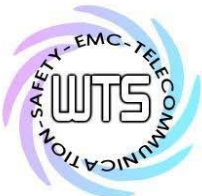
Internal Photos



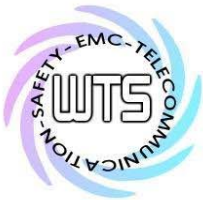
Registration number: W6R21601-15567-E-11



Registration number: W6R21601-15567-E-11



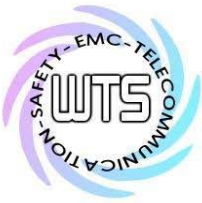
Registration number: W6R21601-15567-E-11



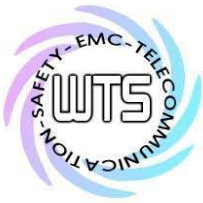
Multi-listing model no.: LS-977



Registration number: W6R21601-15567-E-11



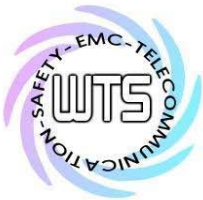
Registration number: W6R21601-15567-E-11



Set Up Photo of Radiated Emission



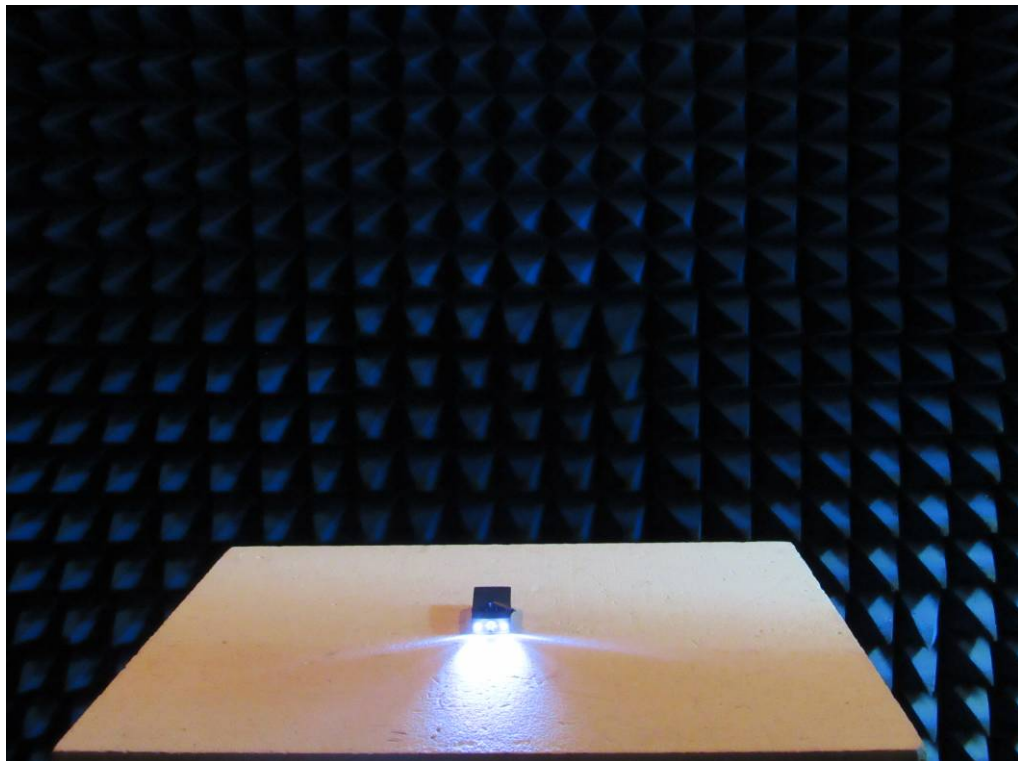
Registration number: W6R21601-15567-E-11



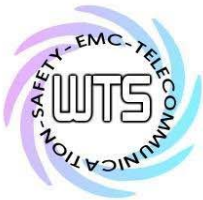
Set Up Photo of ESD



Set Up Photo of RF-Field



Registration number: W6R21601-15567-E-11



Set Up Photo of Magn-Field



Registration number: W6R21601-15567-E-11