FCC PART 15 SUBPART C / IC RSS-210 TEST REPORT

for

TOOL

Model No.: PR1-001

FCC ID: XVBPR1001

IC: 9368A-PR1001

of

Applicant: **Standard Motor Products, Inc.**
Address: **37-18 Northern Boulevard, Long Island City, New York 11101, United States**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

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

A2LA Accredited No.: 2732.01

Report No.: W6D21103-11340-P-15

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.
The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.
Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.
Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.
The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.
The test report may only be reproduced or published in full.
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Tester:

March 22, 2011		Kevin Wang	Kevin Wang
Date	WTS-Lab.	Name	Signature

Technical responsibility for area of testing:

March 22, 2011		Chang Tse-Ming	Chang Tse-Ming
Date	WTS	Name	Signature

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

1.2 Testing laboratory

1.2.1 Location

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

1.2.2 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

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

Name:	./.
Accredited number:	./.
Street:	./.
Town:	./.
Country:	./.
Telephone:	./.
Fax:	./.

1.3 Details of approval holder

Name:	Standard Motor Products, Inc.
Street:	37-18 Northern Boulevard,
Town:	Long Island City, New York 11101
Country:	United States
Telephone:	718-316-4571
Fax:	718-786-8247

1.4 Application details

Date of receipt of test item:	January 18, 2011
Date of test:	from January 18, 2011 to January 20, 2011

1.5 General information of Test item

Type of test item:	TOOL
Model Number:	PR1-001
Multi-listing model number:	PR1-002
Brand name:	SMP
Photos:	see Appendix

Technical data

Transmitting Frequency:	125 kHz
Operation modes:	simplex
Modulation Type:	AM
Antenna Type:	Helical Antenna
Antenna Gain:	Max. 0 dBi
Power supply:	Adaptor (I/P: AC 115 V / 50-60 Hz / 0.2 A, O/P: 9 Vdc / 1.1 A)

Manufacturer: (if different from Approval Holder)

Name:	./.
Street:	./.
City:	./.
Country:	./.
Additional information:	./.

1.6 Test standards

Technical standard : FCC RULES SUBPART C § 2.1049, § 15.203, § 15.209, § 15.207 (2009-10)

IC RSS-210 Issue 8 December 2010

IC RSS-Gen Issue 3 December 2010

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified in 3 were ascertained in the course of the tests performed. ☐

2.2 Test environment

Temperature:	23 °C
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Details of power supply	Adaptor (I/P: AC 115 V / 50-60 Hz / 0.2 A, O/P: 9 Vdc / 1.1 A)
Extreme conditions parameters:	test voltage : -- extreme min : -- V max : -- V

2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2010/9/2	2011/9/1
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2010/9/8	2011/9/7
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2010/5/8	2011/5/7
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use NCR	
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	2010/7/21	2011/7/20
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2010/10/21	2011/10/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2010/9/6	2011/9/5
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2011/2/21	2012/2/20
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	Function Test	
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2010/8/10	2011/8/9
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2010/9/14	2011/9/13
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2010/9/2	2011/9/1
ETSTW-RE 006	Attenuator 10dB	50HF-010-5N-1	None	STEP	2011/3/1	2012/2/28
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2010/9/6	2011/9/5
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 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2010/10/4	2011/10/3
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2010/8/20	2011/8/19
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2010/7/22	2011/7/21
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	2010/4/14	2011/4/13
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2010/4/14	2011/4/13
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2011/2/25	2012/2/24
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2010/10/4	2011/10/3
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2010/10/4	2011/10/3
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2011/1/14	2012/1/13
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2010/5/11	2011/5/10
ETSTW-RE 047	PSA SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	Pre-test Use NCR	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2010/8/30	2011/8/29
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2010/4/13	2011/4/12

ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2011/3/1	2012/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2011/3/1	2012/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2011/3/1	2012/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2010/6/3	2011/6/2
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2011/3/1	2012/2/28
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2010/9/27	2011/9/26
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2010/11/30	2011/11/29
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2010/4/13	2011/4/12
ETSTW-RE 066	Highpass Filter	H1G013G1	206015	MICROWAVE CIRCUITS, INC.	2011/3/1	2012/2/28
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2010/10/7	2011/10/6
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2011/1/10	2012/1/9
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2011/1/10	2012/1/9
ETSTW-RE 081	Highpass Filter	H03G13G1	4260-02 DC0428	MICROWAVE CIRCUITS, INC.	2011/3/1	2012/2/28
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2010/5/31	2011/5/30
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2011/3/1	2012/2/28
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2011/3/1	2012/2/28
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2011/3/1	2012/2/28
ETSTW-RE 111	Log-Periodic Dipole Array Antenna	VULB 9160	9160-3309	Schwarz beck	2010/12/17	2011/12/16
ETSTW-RE 114	2.4GHz Notch Filter	N0124411	473873	MICROWAVE CIRCUITS	2011/1/13	2012/1/12
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2010/10/7	2011/10/6
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40/12+9SS	3	WI	2011/1/14	2012/1/13
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2011/1/14	2012/1/13
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2011/1/14	2012/1/13
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2011/1/14	2012/1/13
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2010/9/20	2011/9/19
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104（S_Cable 7）	238093	HUBER+SUHNER	2010/9/27	2011/9/26
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104（S_Cable 11）	209953	HUBER+SUHNER	2010/9/27	2011/9/26
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2011/3/1	2012/2/28
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	2010/8/19	2011/8/18
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2010/8/19	2011/8/18
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104（S_Cable 5）	232345	HUBER+SUHNER	2011/3/1	2012/2/28
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2011/3/1	2012/2/28
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2010/9/13	2011/9/12

ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2010/9/13	2011/9/12
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S_Cable 9）	279067	SPECTRUM	2011/1/28	2012/1/27
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104（S_Cable 10）	238092	HUBER+SUHNER	2010/11/30	2011/11/29
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104（S_Cable 19）	316739	HUBER+SUHNER	2011/3/1	2012/2/28
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2010/11/30	2011/11/29
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2010/11/30	2011/11/29
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.16 Firmware Version 2.18	
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	
WTSTW-SW 005	GSM Fading Level Correction	GSMFadLevCor	None	R&S	Version 1.66	

2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50µH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBµV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dBµV + 10.36 dB + 6 dB = 36.36 dBµV/m @3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm height and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the centre of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Dist., New Taipei City 207, Taiwan (R.O.C.) The Registration Number: 930600.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.209 IC RSS-Gen 7.2.5 Table 6	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.209 IC RSS-Gen 7.2.5 Table 6	☒	☒	☐
Spurious Emissions radiated – Receiver operating	15.209 IC RSS-Gen 7.2.5 Table 6	☒	☒	☐
Occupied bandwidth	2.1049 IC RSS-Gen 4.6	☒	☒	☐
Antenna Requirement	FCC 15.203 IC RSS-Gen	☒	☒	☐
Power Line Conducted Emission	FCC 15.207 IC RSS-Gen	☒	☒	☐

The follows is intended to leave blank.

3.1 Peak Output Power

FCC Rules: 15.209

The power was measured with modulation (declared by the applicant).

Frequency (kHz)	**Transmitter field strength (dBµV/m)**
126.041666667	82.54
Measurement uncertainty	**± 4.86 dB**

Limits: 15.209

Frequency of Emission (MHz)	Field Strength of Fundamental Limit uV/m	Measurement distance
0.009 – 0.490	2400 / f (KHz)	300
0.49 – 1.705	24000 / f (KHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

The test was performed in the anechoic chamber at 3 meter test distance, i.e. the distance between measuring antenna and EUT boundary. The results were extrapolated by using the square of an inverse linear distance factor DF:

DF (distance factor) = 40 log (D_1/D_2) = 80 dB, where

D_1 is the 300 meter specified measurement distance,
D_2 is the 3 meter test measurement distance.

For 125 kHz frequency the calculated limit is:
$Limit_{3m} = Limit_{300m}$ + DF = 25.6dBuV/m + 80 dB = 105.6 dBuV/m

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 027, ETSTW-RE 055.

Explanation: See attached diagrams in appendix.

3.2 Spurious Emissions radiated – Transmitter operating

FCC Rules: 15.209

The field strength of any emission appearing outside of the specific band shall not exceed the general radiated emission limits in 15.209.

For the frequency from 9 kHz to 30 MHz:

Frequency (kHz)	Test Result (dBµV/m)	Limit (Note 3) (dBµV/m)	Margin (dB)
155.026693054	82.12	103.80	-21.68
164.855680844	80.20	103.26	-23.06
1869.136205	54.68	69.54	-14.86
2002.526973	53.79	69.54	-15.75
2246.332717	53.34	69.54	-16.20
2496.767680	52.45	69.54	-17.09
Measurement uncertainty	**± 4.86dB**		

For the frequency from 30 MHz to 1000 MHz.:

Model: PR1-001 Date: 2011/1/19
Mode: Temperature: 24 ˚C Engineer: Danny
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
54.3487	15.11	peak	13.97	29.08	40.00	-10.92	240	310
78.6974	13.03	peak	10.22	23.25	40.00	-16.75	260	320
298.3768	11.81	peak	16.19	28.00	46.00	-18.00	250	250
699.7996	9.10	peak	24.84	33.94	46.00	-12.06	260	140
879.3587	9.06	peak	27.31	36.37	46.00	-9.63	130	130
941.0822	7.40	peak	28.40	35.80	46.00	-10.20	145	120

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
54.3487	22.22	peak	13.97	36.19	40.00	-3.81	210	140
78.1563	19.85	peak	10.33	30.18	40.00	-9.82	200	135
111.7034	21.21	peak	12.85	34.06	43.50	-9.44	190	140
520.2405	13.69	peak	21.51	35.20	46.00	-10.80	160	310
876.5531	8.81	peak	27.26	36.07	46.00	-9.93	250	320
939.6794	7.09	peak	28.38	35.47	46.00	-10.53	285	350

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 0.009-30MHz = ± 4.86dB, 30-1000MHz = ± 4.94dB, 1-18 GHz = ± 5.50dB, 18-40 GHz = ± 5.20 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
6. **See the attached diagram as appendix.**

All other not noted test plots do not contain significant test results in relation to the limits.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Limits: 15.209

Frequency of Emission (MHz)	Field Strength of Fundamental Limit uV/m	Measurement distance
0.009 – 0.490	2400 / f (KHz)	300
0.49 – 1.705	24000 / f (KHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

* In the emission table above, the tighter limit applies at the band edges.

The test was performed in the anechoic chamber at 3 meter test distance, i.e. the distance between measuring antenna and EUT boundary. The results were extrapolated by using the square of an inverse linear distance factor DF:

DF = 40 log (D_1/D_2) = 80 dB, where

For D_1 is the 300 meter specified measurement distance.
D_2 is the 3 meter test measurement distance.
The DF = 80 dB was applied for limit calculation at 3 meter test distance measurements.

For D_1 is the 30 meter specified measurement distance.
D_2 is the 3 meter test measurement distance.
The DF = 40 dB was applied for limit calculation at 3 meter test distance measurements.

If the frequency between 9 – 490 kHz,
Limit = 20log(2400/f(kHz)) + 80

If the frequency between 490 – 1705 kHz,
Limit = 20log(2400/f(kHz)) + 40

If the frequency between 1705 – 30000 kHz,
Limit = 20log30 + 40

For 125 kHz frequency the calculated limit is:
$Limit_{3m}$ = $Limit_{300m}$ + DF = 25.6dBuV/m + 80 dB = 105.6 dBuV/m

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 027, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 055, ETSTW-RE 049.

Explanation: See attached diagrams in appendix.

3.3 Occupied Bandwidth

FCC Rules: 2.1049

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated are each equal to 0.5% of the total mean power radiated by a given emission.

The resolution bandwidth of the spectrum analyzer shall be set to a value greater than 5.0% of the allowed bandwidth specifications are given, the following guidelines are used:

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 MHz to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

Test result:

Frequency (kHz)	**Occupied Channel Bandwidth (kHz)**
124.8941	28.6858

Test equipment: ETSTW-RE 055

Explanation: See attached diagrams in appendix.

3.4 Antenna requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

Explanation: This antenna is Helical Antenna which passes antenna requirement.

The equipment meets the requirements	yes ☒	no ☐

3.5 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level (dBµV)	
	quasi-peak	average
150 kHz	Lower limit line	Lower limit line

Model: PR1-001 Date: 2011/1/19
Mode: Temperature: 24 ˚C Engineer: Danny
Polarization: N Humidity: 60 %

Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)
0.1620	45.04	38.46	10.75	55.79	49.21	65.36	55.36	-6.15
0.3235	40.63	35.63	10.72	51.35	46.35	59.62	49.62	-3.27
0.6462	40.47	33.24	10.59	51.06	43.83	56.00	46.00	-2.17
0.8065	40.28	32.12	10.49	50.77	42.61	56.00	46.00	-3.39
1.6166	35.69	29.81	10.20	45.89	40.01	56.00	46.00	-5.99
18.6691	21.26	16.32	10.79	32.05	27.11	60.00	50.00	-22.89

Polarization: L1

Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)
0.1620	45.04	38.46	10.75	55.79	49.21	65.36	55.36	-6.15
0.3235	40.63	35.63	10.72	51.35	46.35	59.62	49.62	-3.27
0.6462	40.47	33.24	10.59	51.06	43.83	56.00	46.00	-2.17
0.8065	40.28	32.12	10.49	50.77	42.61	56.00	46.00	-3.39
1.6166	35.69	29.81	10.20	45.89	40.01	56.00	46.00	-5.99
18.6691	21.26	16.32	10.79	32.05	27.11	60.00	50.00	-22.89

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Note
1. The formula of measured value as: Test Result = Reading + Correction Factor
2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
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 = ±1.30dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
6. See attached diagrams as appendix.

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test equipment used: ETSTW-CE 001, ETSTW-CE 003, ETSTW-CE 016, ETSTW-CE 006, ETSTW-RE 064.

Explanation: See attached diagrams in appendix.

Appendix

A Measurement diagrams

1. Peak Output Power
2. Spurious Emissions radiated- transmitter
3. Occupied Bandwidth
4. Power Line Conducted Emission

B Photos

1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission
4. Set Up Photo of Conducted Emission

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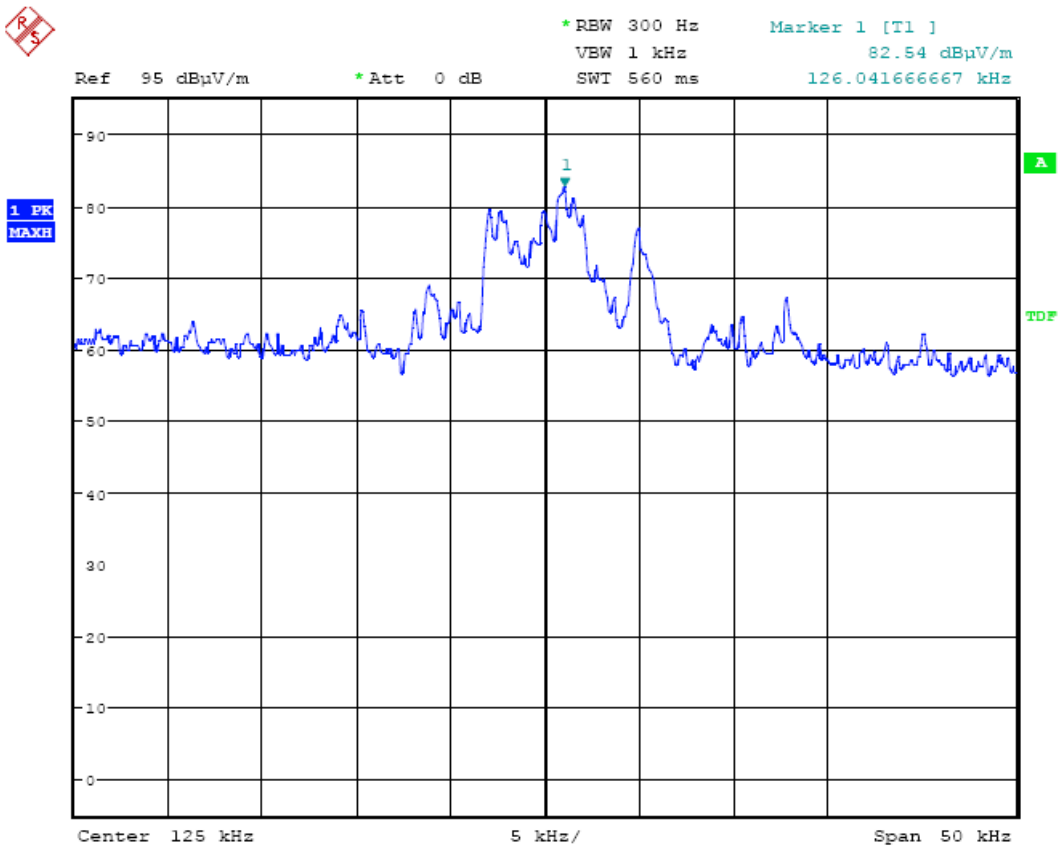
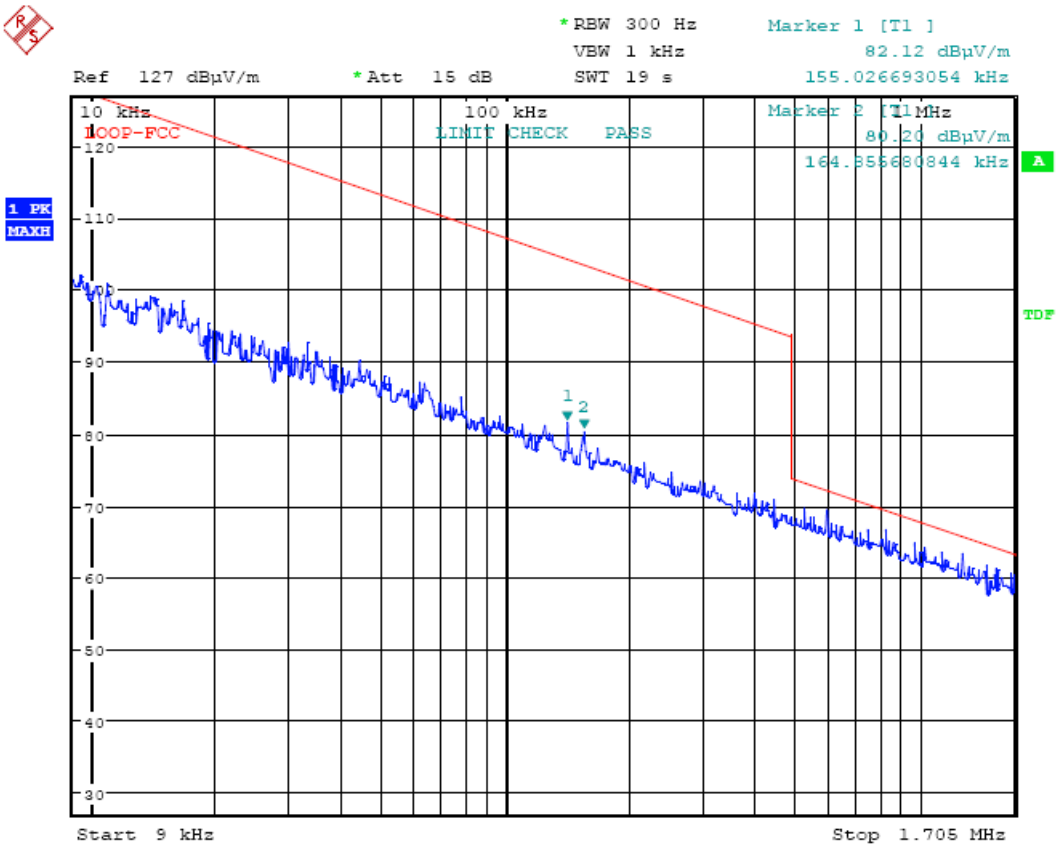
Peak Output Power



POWER
Date: 19.JAN.2011 18:50:11

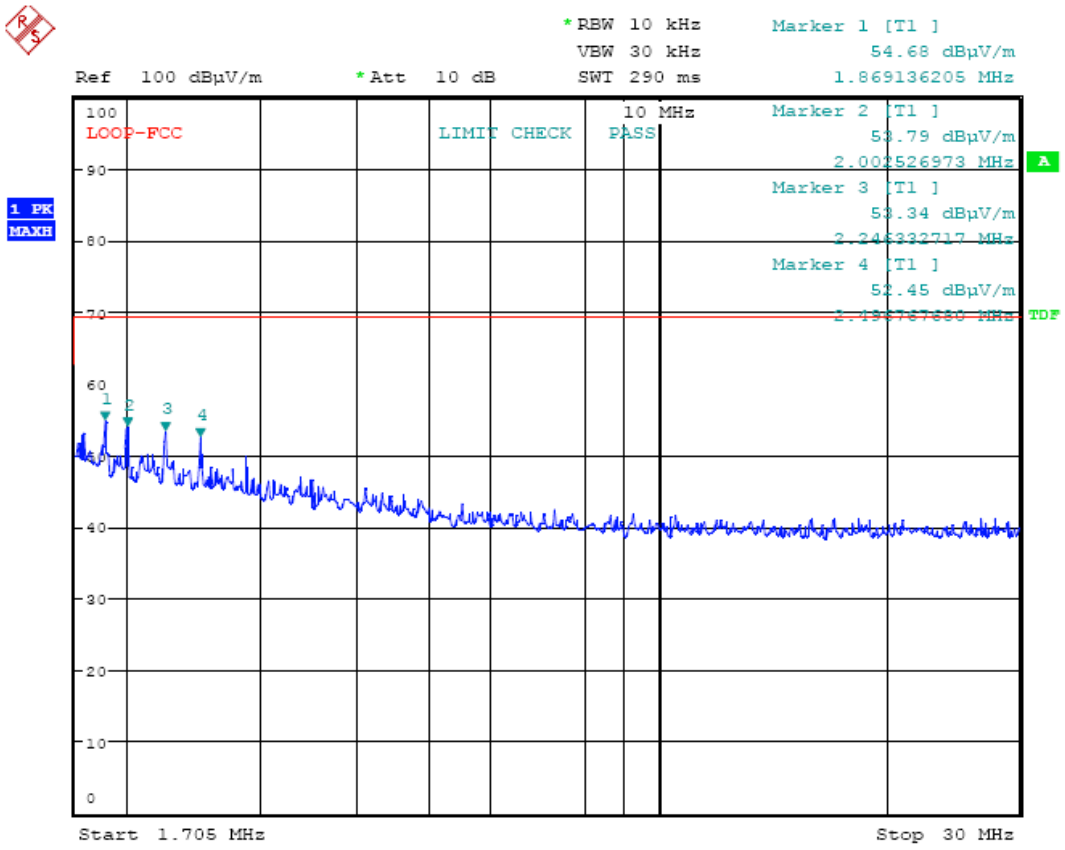
Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Spurious Emissions radiated- transmitter
Frequency from 9 kHz to 30000 kHz:



SPURIOUS EMISSION
Date: 19.JAN.2011 18:55:03

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001



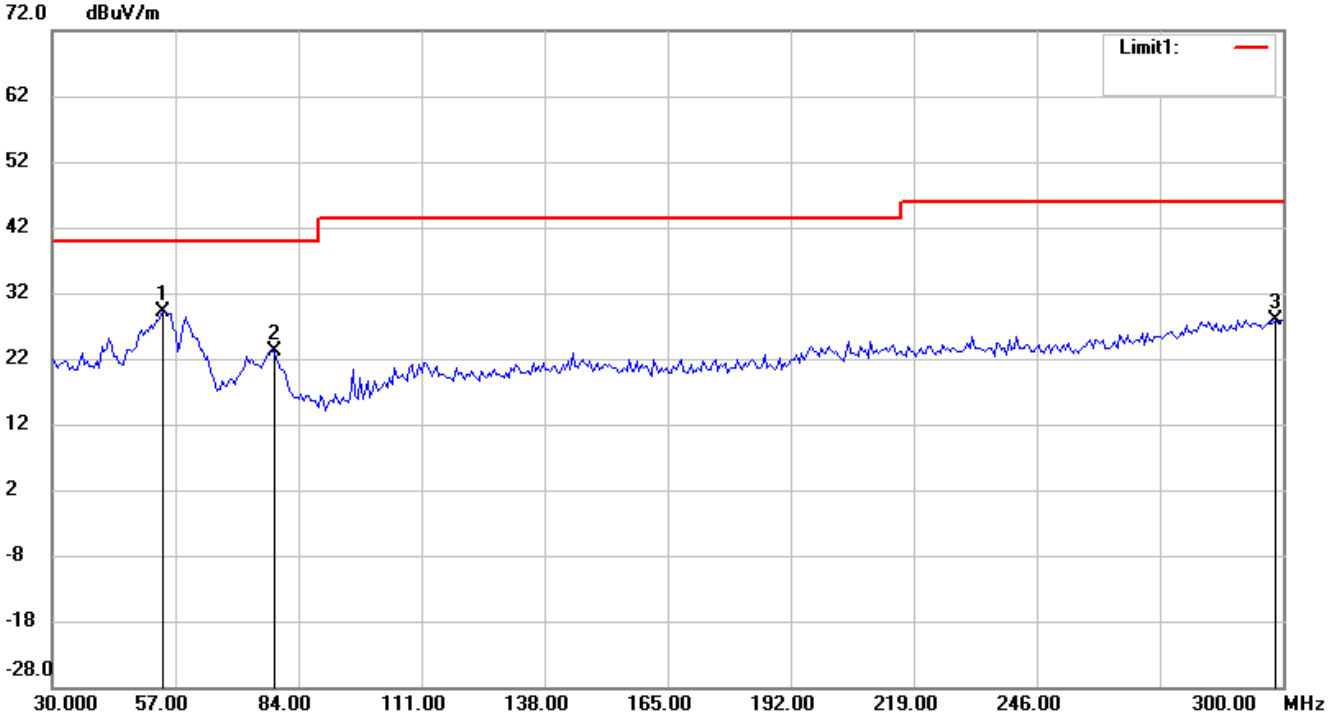
SPURIOUS EMISSION

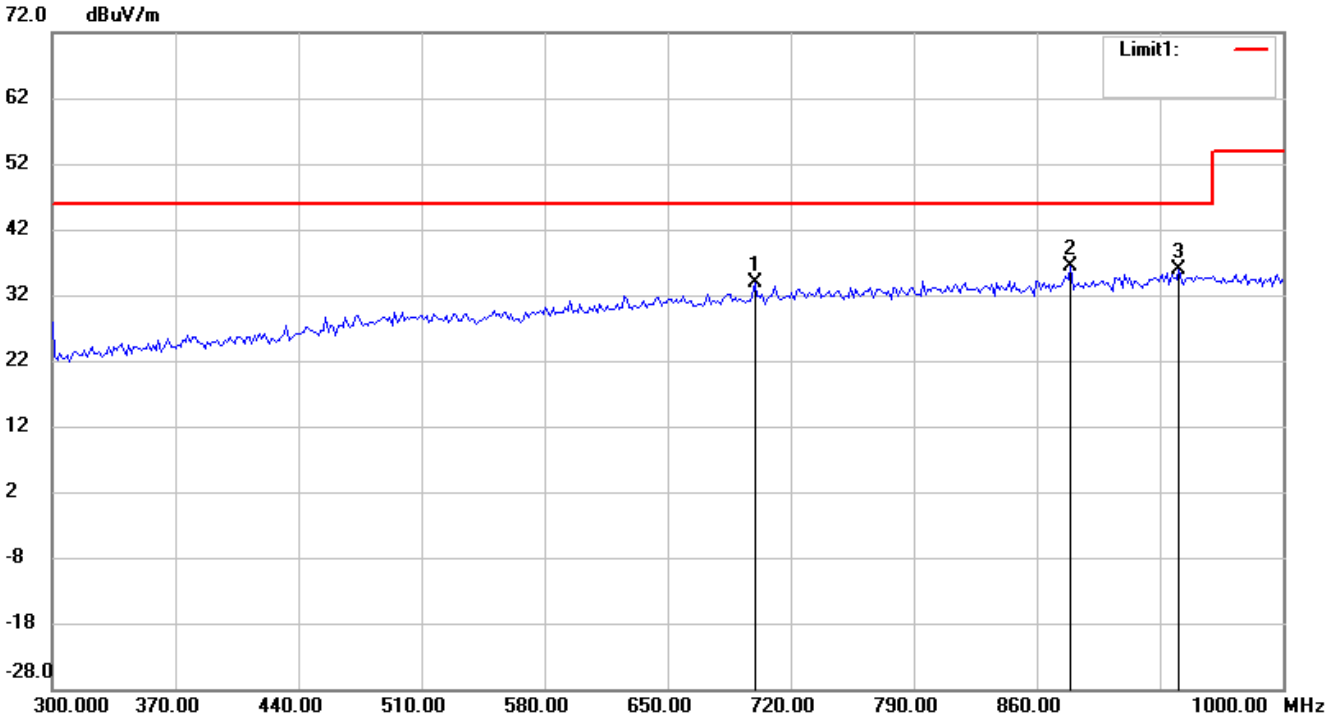
Date: 19.JAN.2011 18:56:53

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Frequency from 30 MHz to 1000 MHz:

Antenna Polarization H





Note:

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

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FCC ID: XVBPR1001
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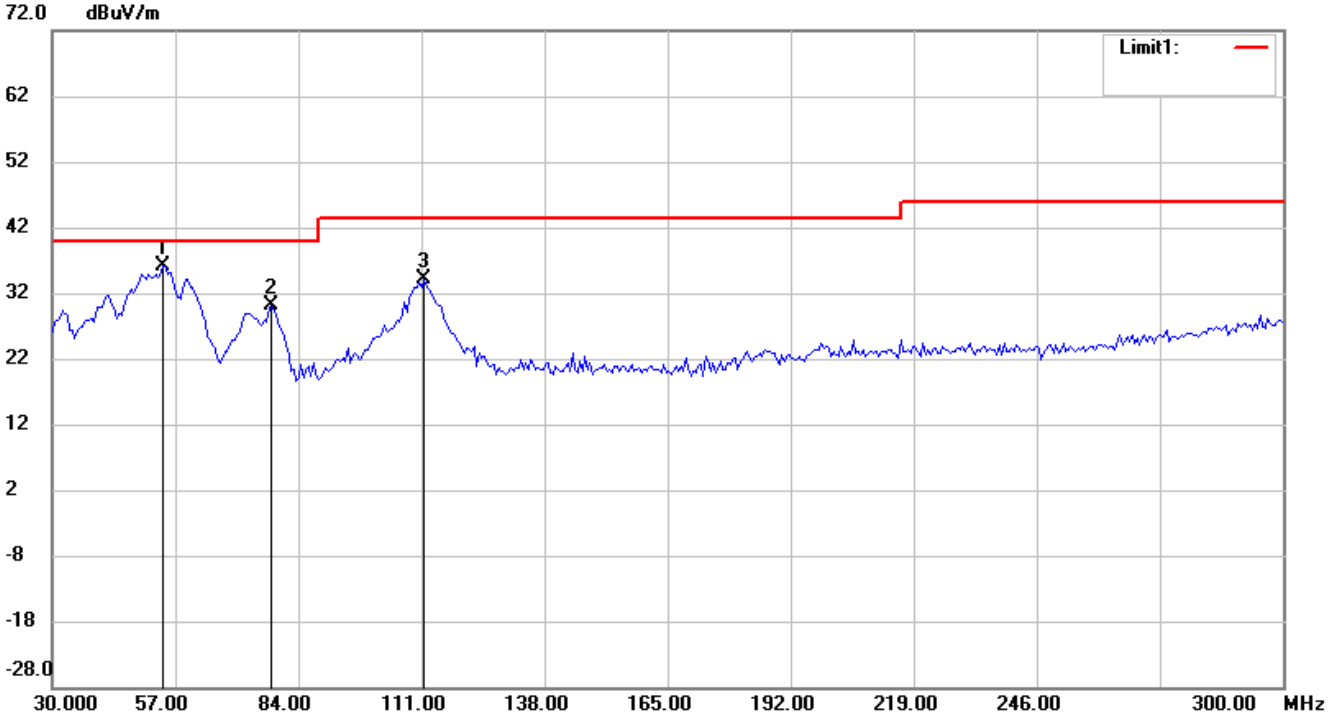
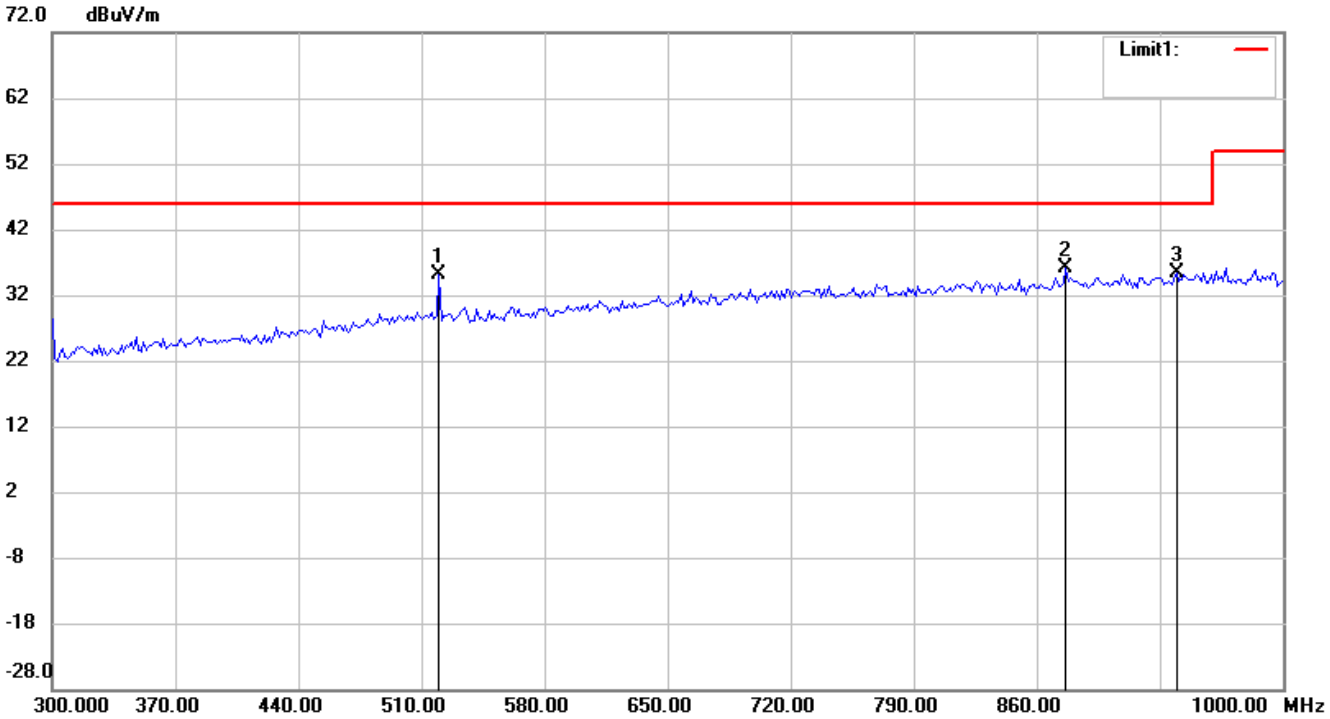
Antenna Polarization V





Note:

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

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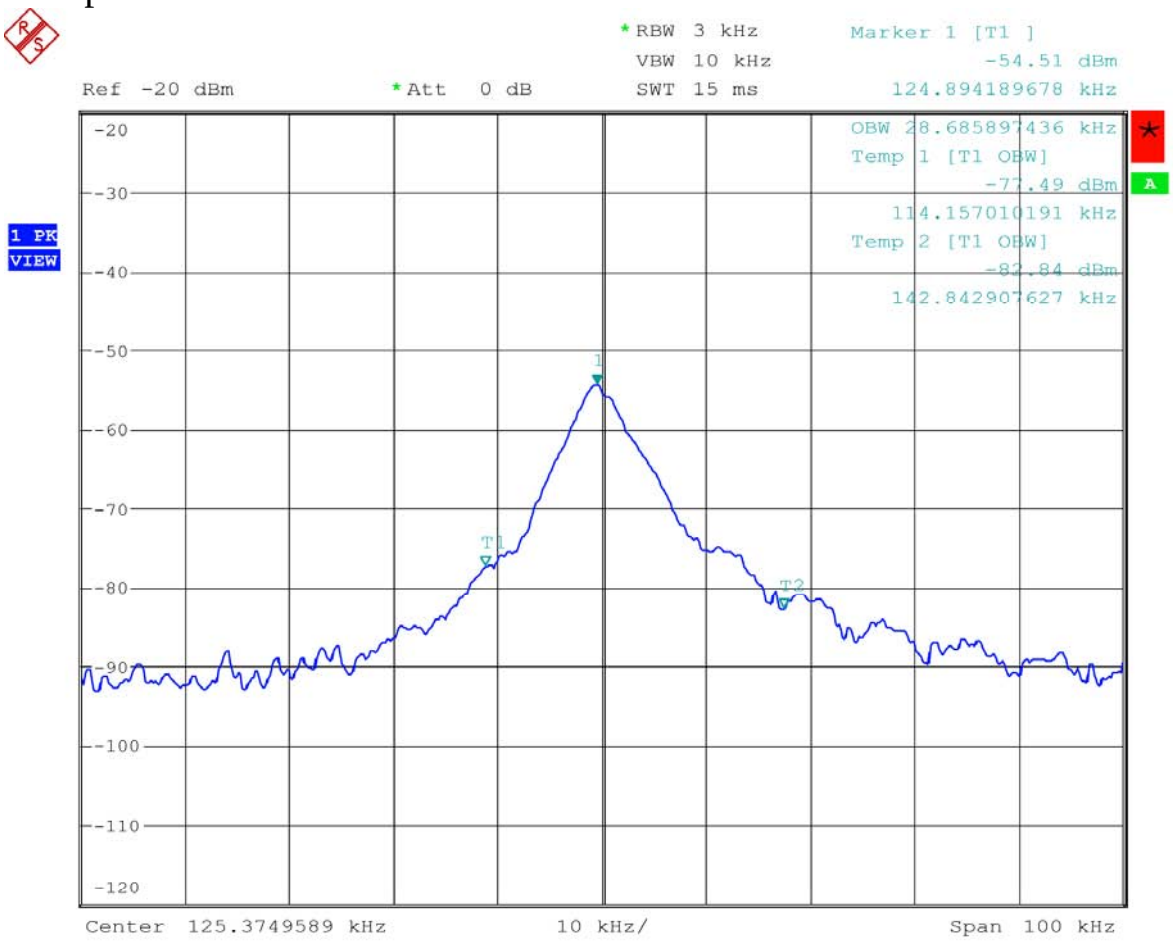
FCC ID: XVBPR1001
IC: 9368A-PR1001

Occupied Bandwidth



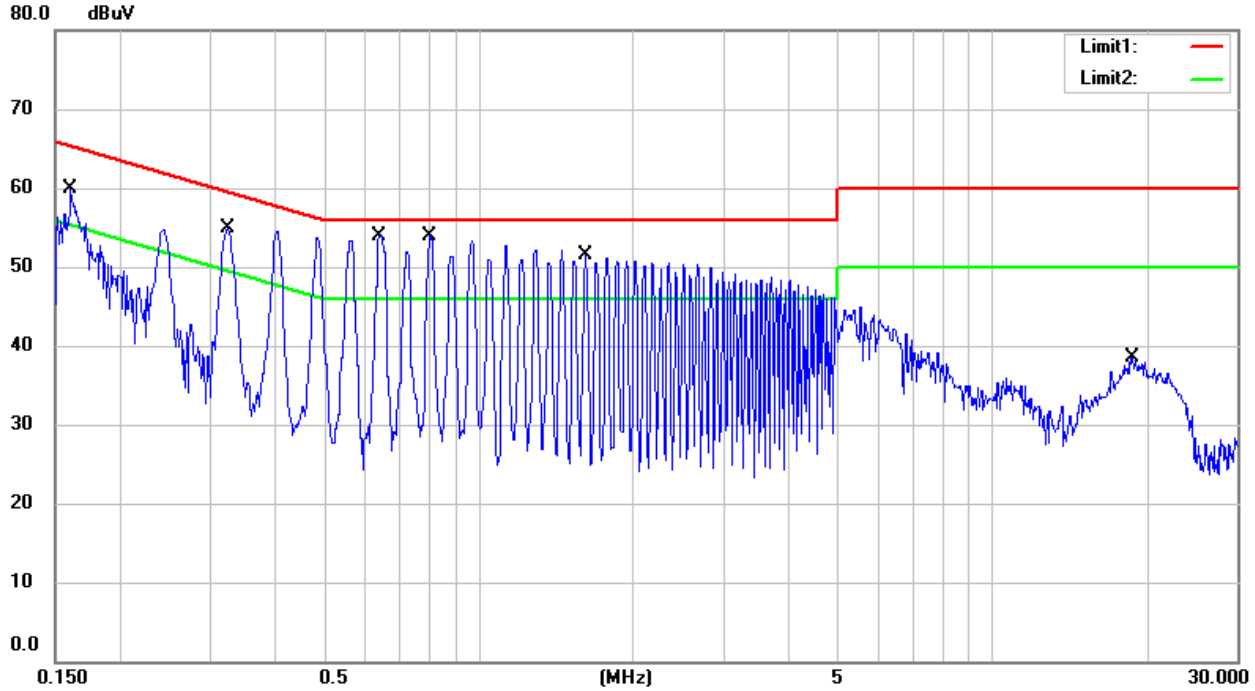
Occupied Bandwidth

Date: 19.JAN.2011 07:09:14

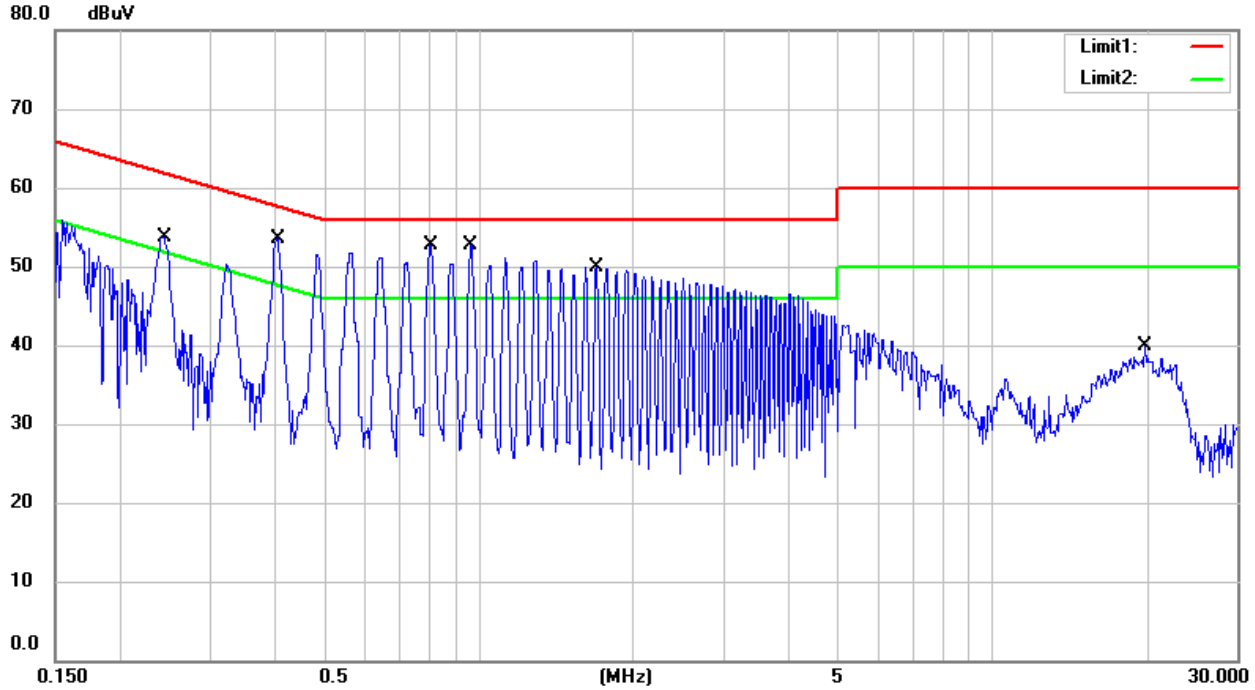
Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Power Line Conducted Emission

LISN N



LISN L1



Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

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External Photos

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FCC ID: XVBPR1001
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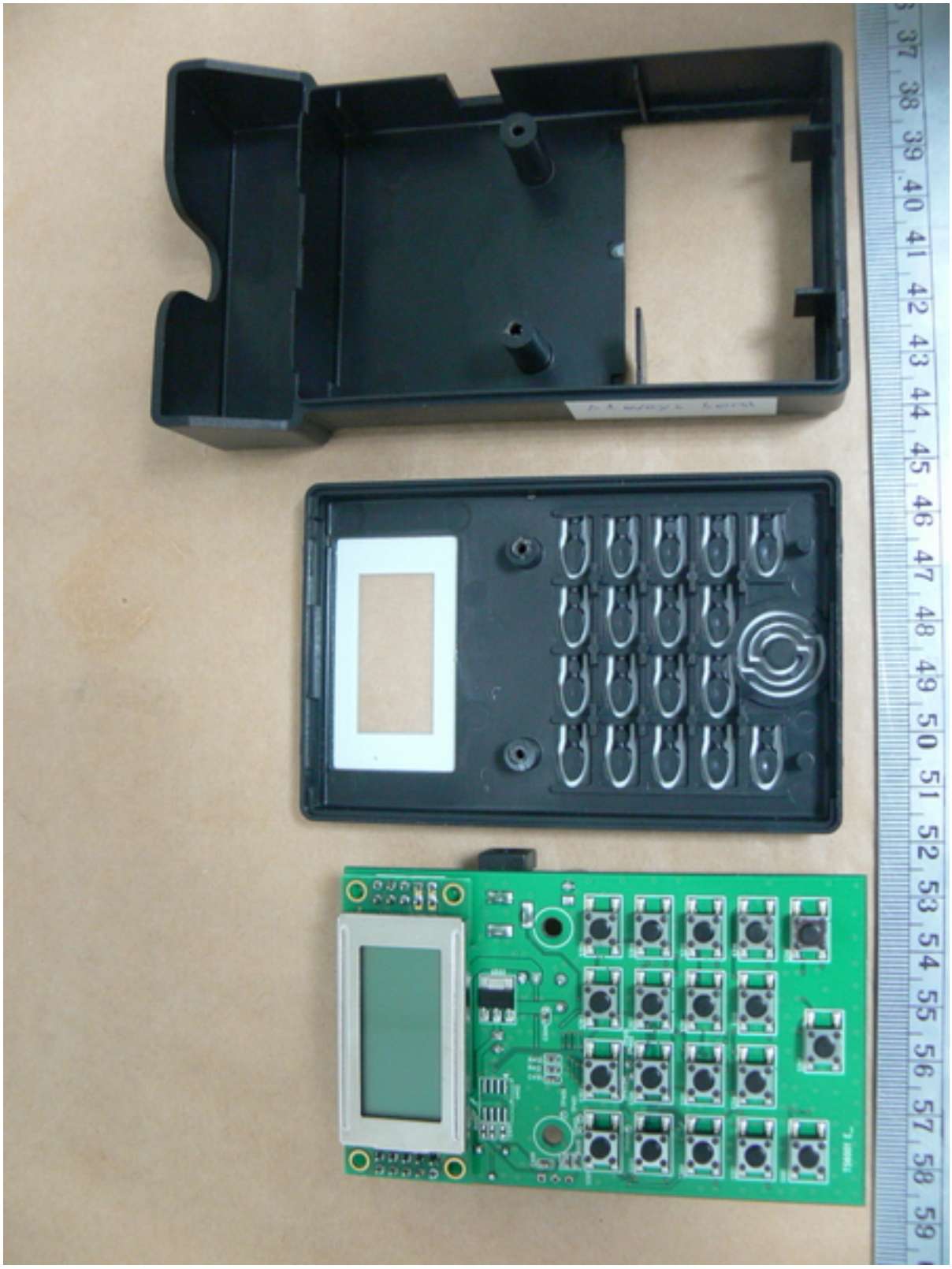
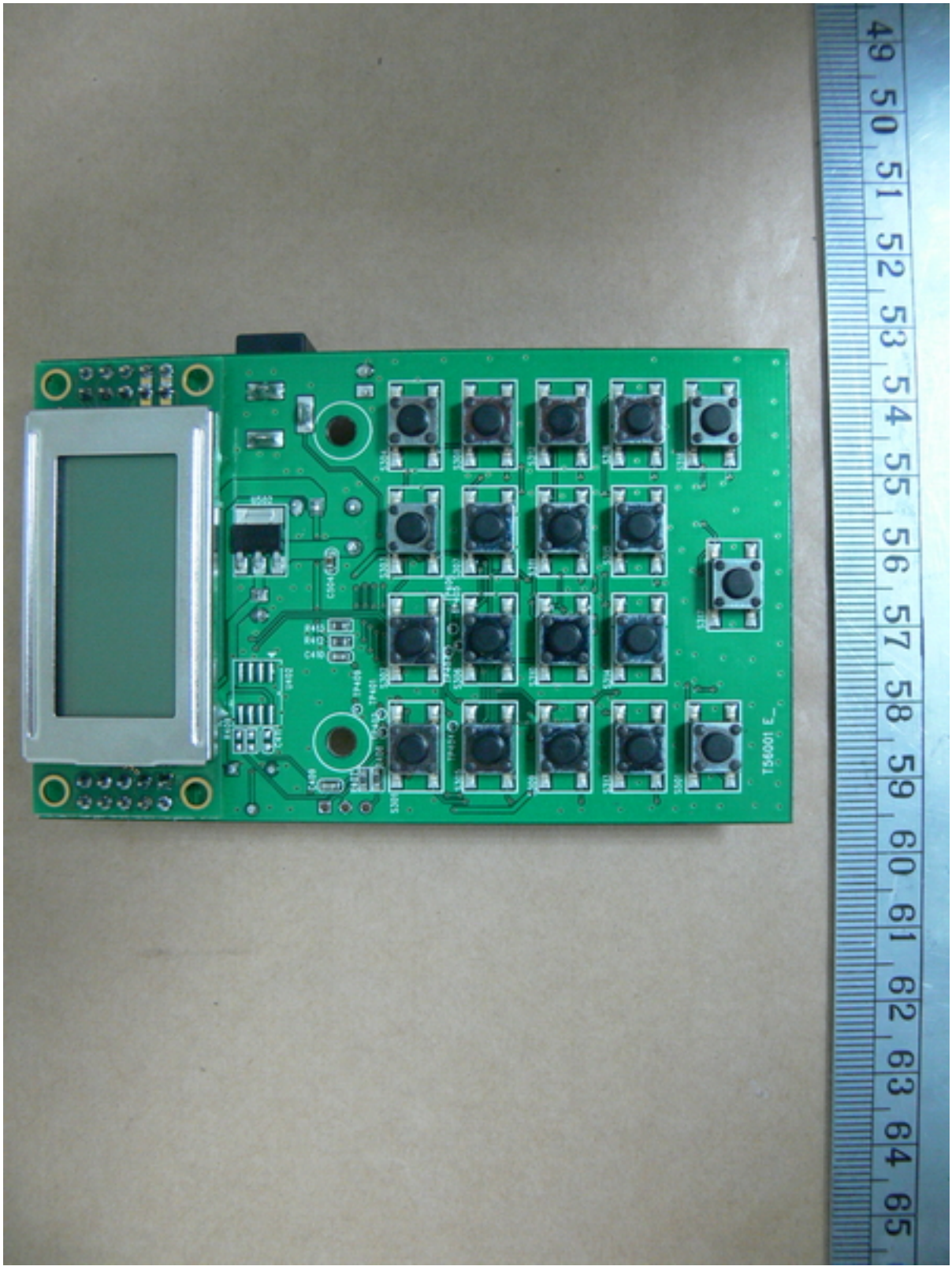
FCC ID: XVBPR1001
IC: 9368A-PR1001

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

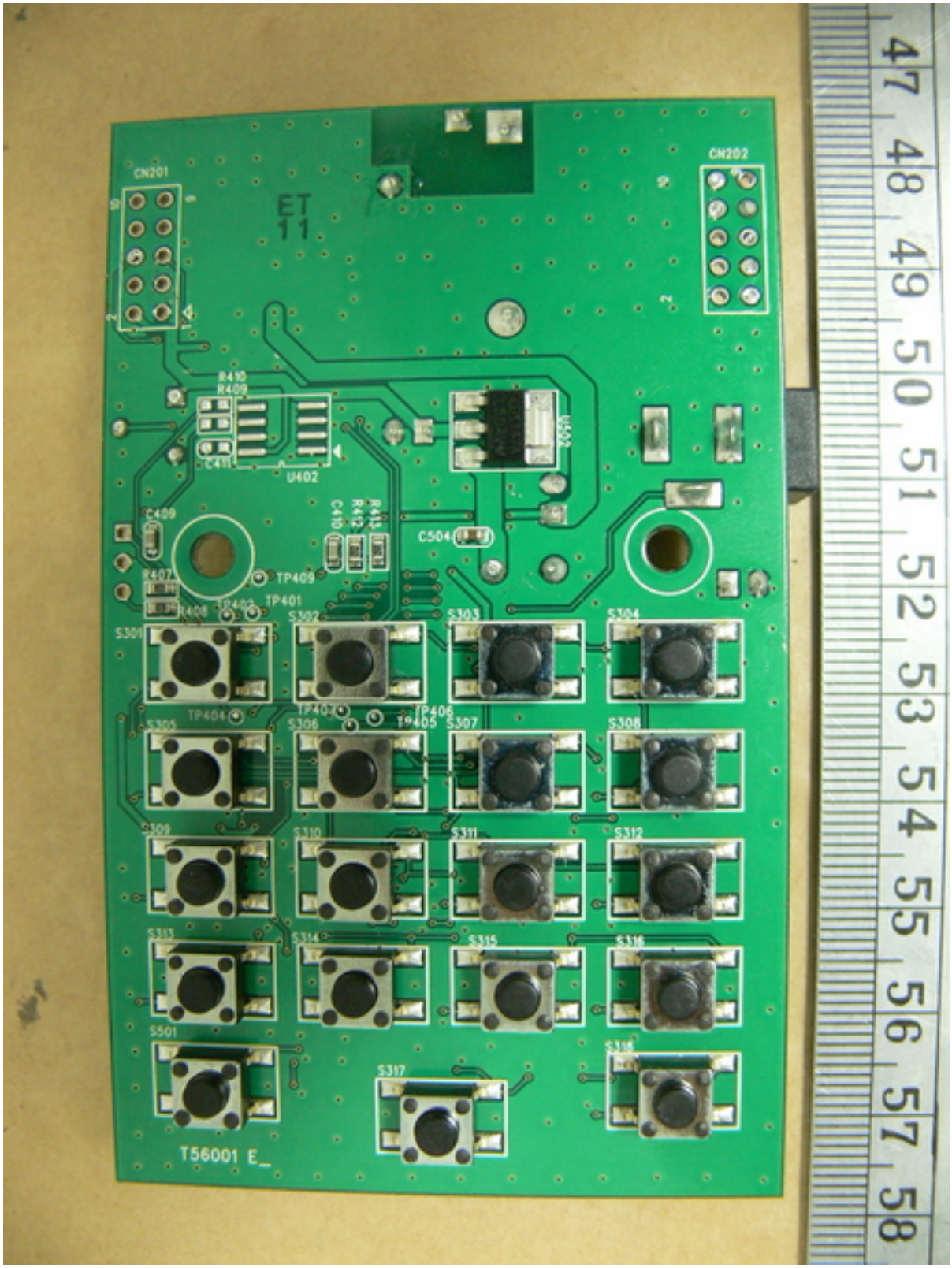
Internal Photos



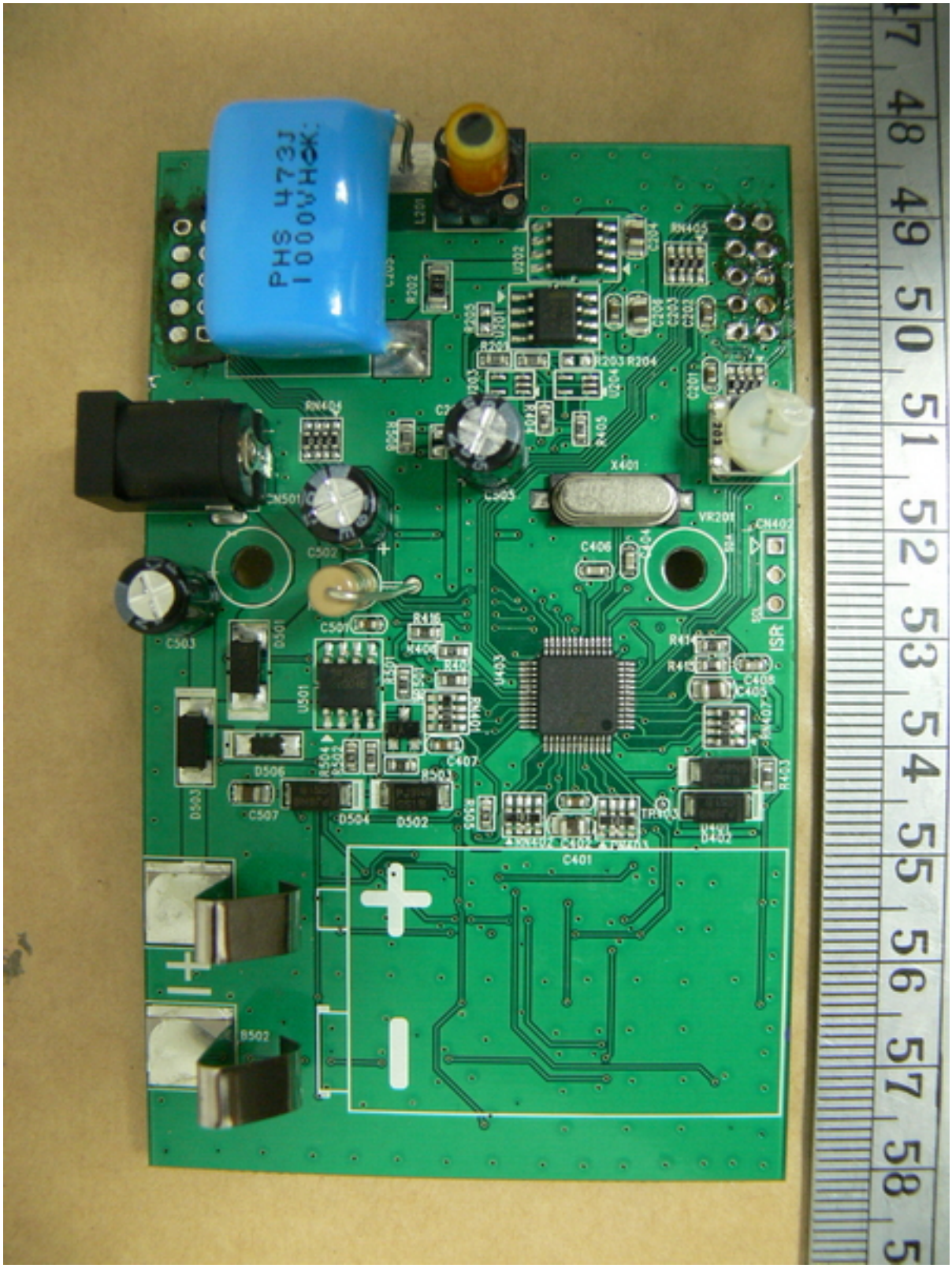
Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001



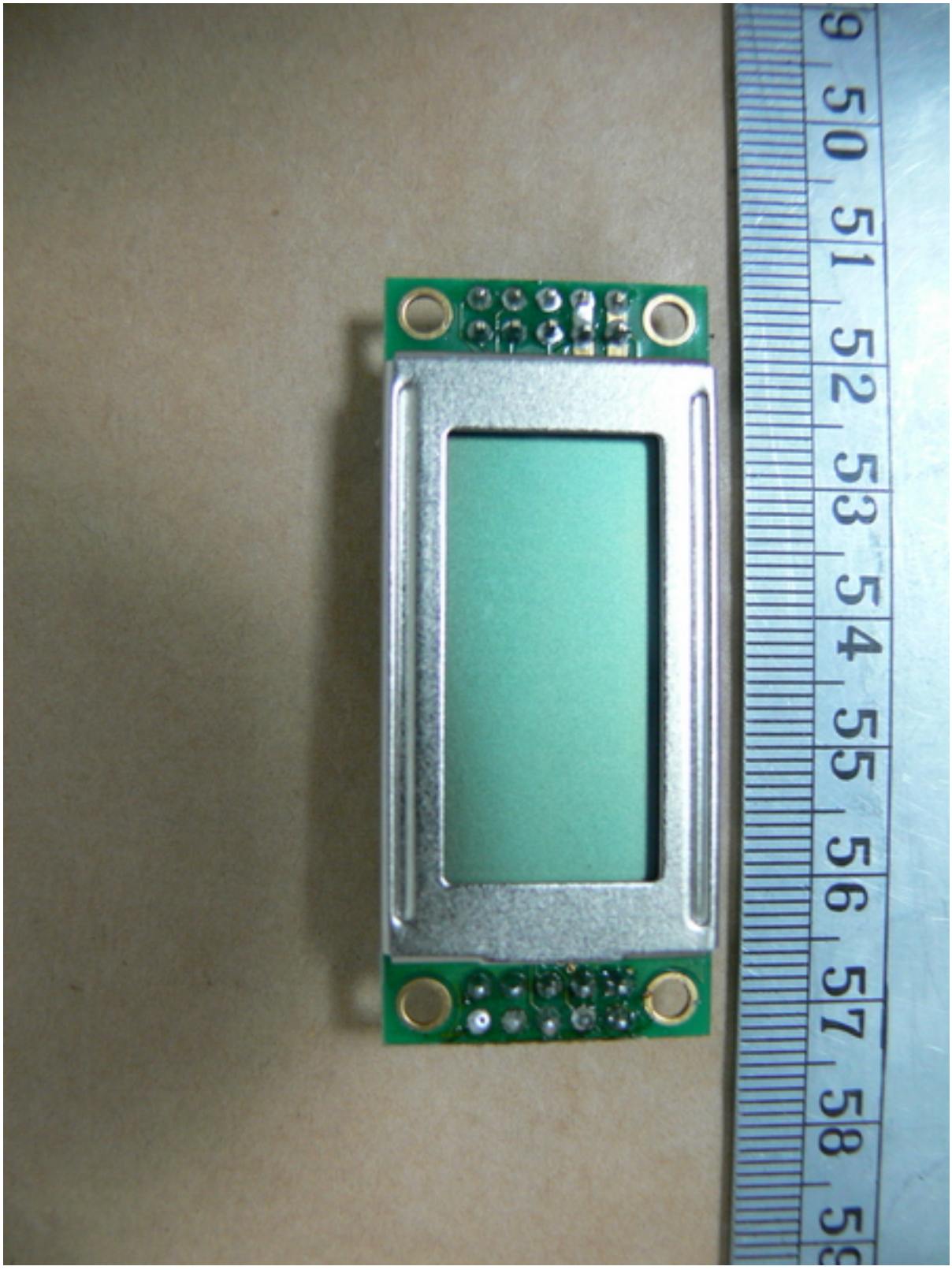
Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001



Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001



Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001



Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
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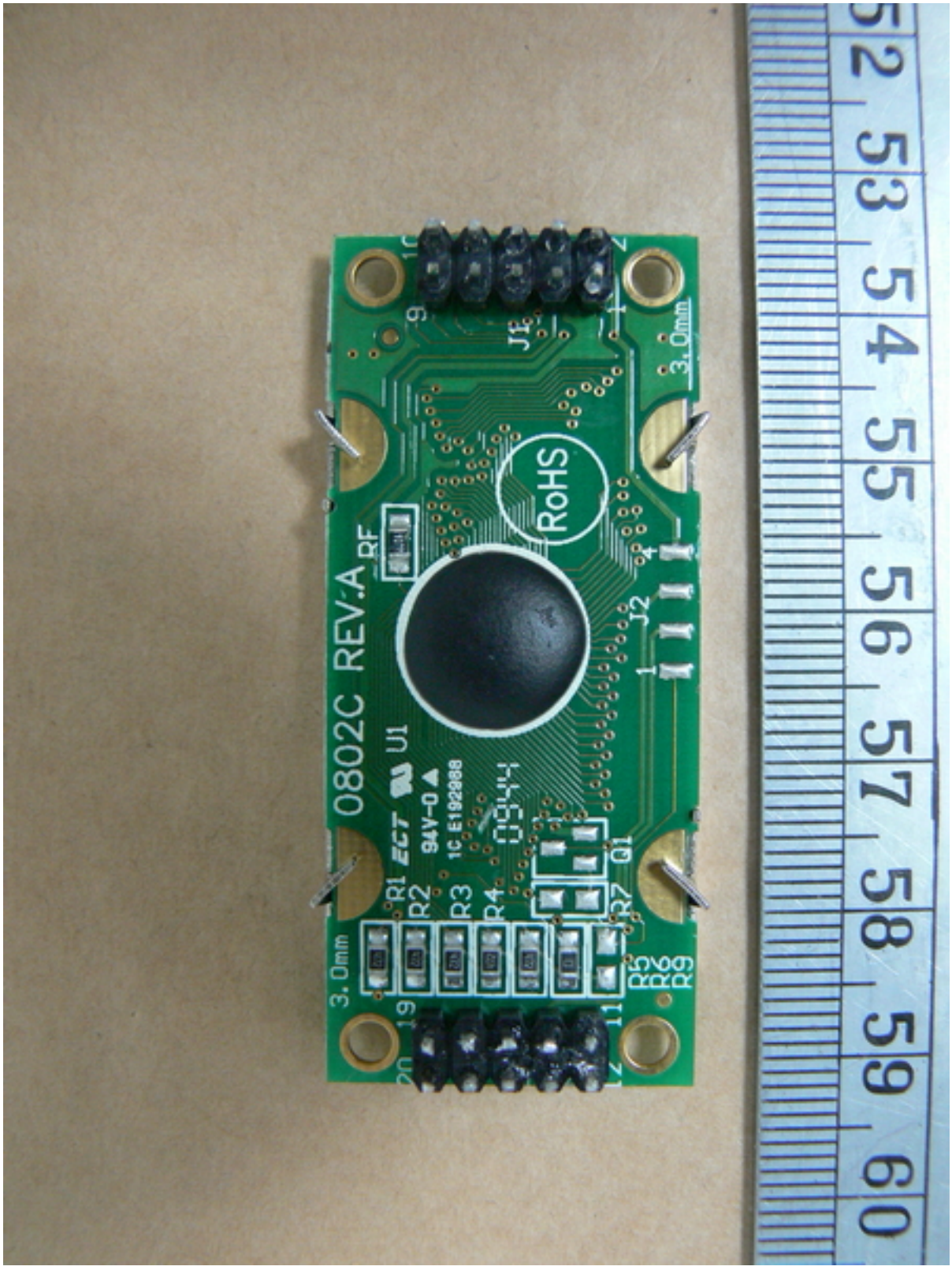

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Set Up Photo of Radiated Emission

Frequency from 9 kHz to 30000 kHz

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Frequency from 30 MHz to 1000 MHz

Registration number: W6D21103-11340-P-15
FCC ID: XVBPR1001
IC: 9368A-PR1001

Set Up Photo of Conducted Emission