

FCC PART 15 SUBPART C TEST REPORT

for

Signal shifter

Model No.: SCBX-3010U-XXXXX (X can be 0~9 A~Z)

FCC ID: MXCSCBX3010U

of

Applicant: SOARING TECHNOLOGY CO., LTD

**Address: 1F, No. 34, Chung-Hsing Rd., Hsichih City, Taipei Hsien,
Taiwan, R.O.C.**

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.: W6M21105-11495-P-15

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wtst@wtst-lab.com



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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 its 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.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

May 27, 2011

Kevin Wang

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

May 27, 2011

Chang Tse-Ming

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 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: SOARING TECHNOLOGY CO., LTD

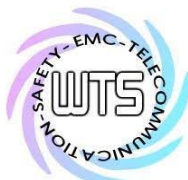
Street: 1F, No. 34, Chung-Hsing Rd.,

Town: Hsichih City, Taipei Hsien,

Country: Taiwan, R.O.C.

Telephone: 886-2-26918000

Fax: 886-2-26420604



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1.4 Application details

Date of receipt of test sample: May 13, 2011
Date of test: from May 16, 2011 to May 25, 2011

1.5 General information of Test item

Type of test item: Signal shifter
Model Number: SCBX-3010U-XXXXX (X can be 0~9 A~Z)
Multi-listing model number: ./.
Brand name: INVISION
Transmitting frequency: 88.3 – 90.3 MHz
Operation mode: simplex
Modulation Type: FM
Voltage supply: 12Vdc
Channel Numbers: 6
Frequency of selectable channel: Odd-88.3/88.7/89.1/89.5/89.9/90.3MHz
Antenna Type: Wire Antenna
Photos: see Appendix

Manufacturer:(if different from Approval Holder)

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

1.6 Test standards

Technical standard :

FCC RULES PART 15 SUBPART C 15.239 (2010-10)



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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.



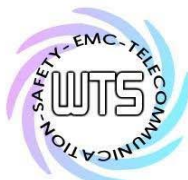
2.2 Test environment

Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Details of power supply: 12Vdc



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2.3 Test equipment utilized

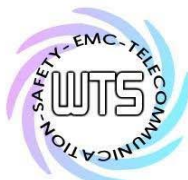
No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2010/9/2	2011/9/1
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2011/3/10	2012/3/9
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	2011/5/3	2012/5/2
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use NCR	
ETSTW-CE 008	HF-EICHLITUNG 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-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2010/8/20	2011/8/19
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	Function Test	
ETSTW-CS 009	6 dB Attenuator	75-A-FFN-06	70998	BIRD	2011/4/18	2012/4/17
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 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 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2011/4/25	2012/4/24
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 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 Serie 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 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2011/4/26	2012/4/25
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2011/4/25	2012/4/24
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use NCR	



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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	2011/4/8	2012/4/7
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2011/3/4	2012/3/3
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2011/3/4	2012/3/3
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2011/3/4	2012/3/3
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	2011/3/4	2012/3/3
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	2011/4/8	2012/4/7
ETSTW-RE 066	Highpass Filter	H1G013G1	206015	MICROWAVE CIRCUITS, INC.	2011/3/4	2012/3/3
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.	2011/3/4	2012/3/3
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2011/5/3	2012/5/2
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2011/3/10	2012/3/9
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2011/3/11	2012/3/10
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2011/3/24	2012/3/23
ETSTW-RE 111	Log-Periodic Dipole Array Antenna	VULB 9160	9160-3309	Schwarz beck	2010/12/17	2011/12/16
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 114	2.4GHz Notch Filter	N0124411	473873	MICROWAVE CIRCUITS	2011/1/13	2012/1/12
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	093	EMC-PARTNER	2010/8/27	2011/8/26
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	2010/11/3	2011/11/2
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	Function Test	
ETSTW-EMS 012	EM Injection Clamp	F-203I-23MM	476	FCC	2010/6/3	2011/6/2
ETSTW-EMS 015	HVAC Trms Power Clamp Meter	3079K	070800649	TES	2010/10/5	2011/10/4
ETSTW-EMS 016	EMF Tester	1390	071208732	TES	2010/10/5	2011/10/4
ETSTW-EMS 017	Multimeter	DM-1220	518614	HOLA	2010/8/18	2011/8/17
ETSTW-EMS 019	Electrostatic Discharge Simulator	ESS-2002	ESS06Y6300	NoiseKen	2010/11/25	2011/11/24
ETSTW-EMS 020	Humidity Temperature Meter	TES-1366	091011116	TES	2011/3/24	2012/3/23
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	Function Test	
ETSTW-RS 004	RF Power Amplifier	150W1000	307009	AR	Function Test	
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2011/3/7	2012/3/6

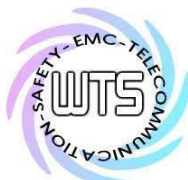


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ETSTW-RS 007	14" COLOR VIDEO MONITOR	HS-CM145A	0512011548	None	Function Test	
ETSTW-RS 009	SIGNAL GENERATOR	8648C	3642U01656	HP	2011/2/23	2012/2/22
ETSTW-RS 010	Broadband Field Meter	NBM-520	C-0195	Narda	2010/10/12	2011/10/11
ETSTW-GSM 002	Universal 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.	2011/3/8	2012/3/7
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2011/3/8	2012/3/7
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104 (S_Cable 5)	232345	HUBER+SUHNER	Function Test	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2011/3/4	2012/3/3
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	2011/3/10	2012/3/9
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2011/3/10	2012/3/9
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2011/4/26	2012/4/25
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2011/4/26	2012/4/25
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	SPECTRUM	2011/3/10	2012/3/9
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	2011/3/4	2012/3/3
ETSTW-Cable 040	Microwave Cable	SUCOFLEX 104 (S_Cable 20)	316738	HUBER+SUHNER	Function Test	
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
ETSTW-Cable 051	BNC Cable	BNC Cable 6	None	JYE BAO CO.,LTD.	2011/3/31	2012/3/30
ETSTW-Cable 052	BNC Cable	Clamp Cable	None	Schwarz beck	2011/3/31	2012/3/30
ETSTW-Cable 053	N TYPE To SMA Cable	OATS Cable 4	None	JYE BAO CO.,LTD.	2011/3/4	2012/3/3



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ETSTW-Cable 054	BNC To SMA Cable	OATS Cable 5	None	JYE BAO CO.,LTD.	2011/3/4	2012/3/3
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	



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50 μ H 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 dB μ V) 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 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2003 Section 13.1.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

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., Wanli Township, Taipei County 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.



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When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

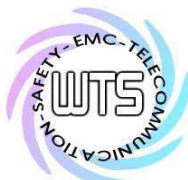
The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = $20 \log (\text{dwell time}/T)$

$T = 100\text{ms}$ when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB



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2.5 Product Description and System Test Configuration

2.5.1 Production Description

The SCBX-3010U-XXXXX (X CAN BE 0~9 A~Z) console assemblies are 7" lcd monitor (single and dual view models) assemblies with a integrated rear slot loading dvd disc players, IR wireless headphone output transmitters, IR remote control, A/V inputs, USB input, and wired audio output (jack) The consoles are intended to be installed in vehicles via a plastic vehicle specific substrate which will allow the factory armrest lid be replaced with the SCBX-3010U-XXXXX (X CAN BE 0~9 A~Z) console/substrate assembly. The Monitors are intended to be installed in passenger vehicles. The Monitors are intended to meet/exceed automotive grade specifications. The monitors will have audio output so audio may be listened through the vehicle's audio system via wired output or Fm wireless transmission. Console will require a latch to withstand ADR21/FMVSS 201 requirements.

2.5.2 System Test Configuration

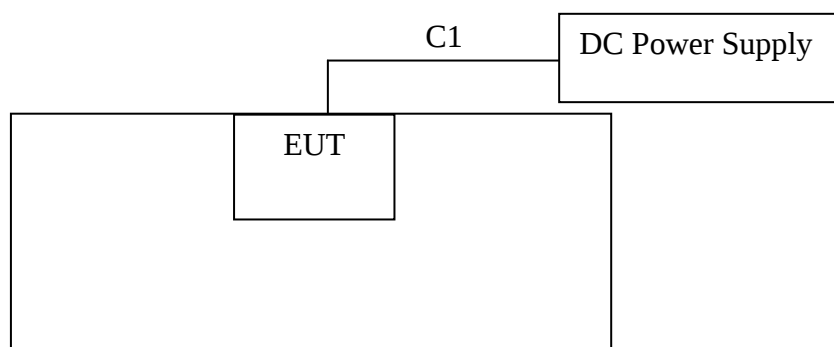
2.5.2.1 Supported Ancillary Equipment

Item	Name of Equipment	Manufacturer	Model Number	FCC ID	Note
1	DC Power Supply	ABM	9306D	N/A	N/A

2.5.2.2 The relevant cables of Supported Ancillary Equipment

Item	Name of Cables	Shielded Used	Ferrite Used	Length	Note
C1	Power line	Non-Shielded	N/A	1.7m	Detachable

2.5.2.3 Setup Configuration



2.5.2.4 Description of Test Mode

The system was configured for testing in a typical arrangement as the manufacturer's declaration. During the test, the CD/DVD player played program and set the volume to the maximum level. There was no special software to be exercised during the test.

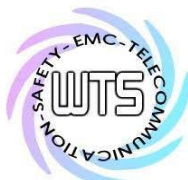
There are three channels on EUT, and the operating frequency range of EUT is from 88.3 MHz to 90.3 MHz. We choose the lowest channel (88.3 MHz) and highest channel (90.3 MHz) for main final test, except choosing the lowest channel (88.3 MHz) for Band Edge testing.



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2.6 The Description of Modification

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



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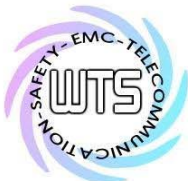
FCC ID: MXCSCBX3010U

3 Test results (enclosure)

TEST CASE	Required	Test passed	Test failed
Emission bandwidth 15.239 (a)	☒	☒	☐
Band Edge Measurement 15.239 (a)	☒	☒	☐
Carrier (Field Strength) 15.239 (b)	☒	☒	☐
Spurious Emissions 15.239 (c)	☒	☒	☐
Power Line Conducted Emission 15.207	☐	☐	☐

Note: The lowest channel is 88.3 MHz and the highest channel is 90.3 MHz. The tuning control were manually adjusted to verify maximum tuning range.

(The follows is intended to leave blank.)

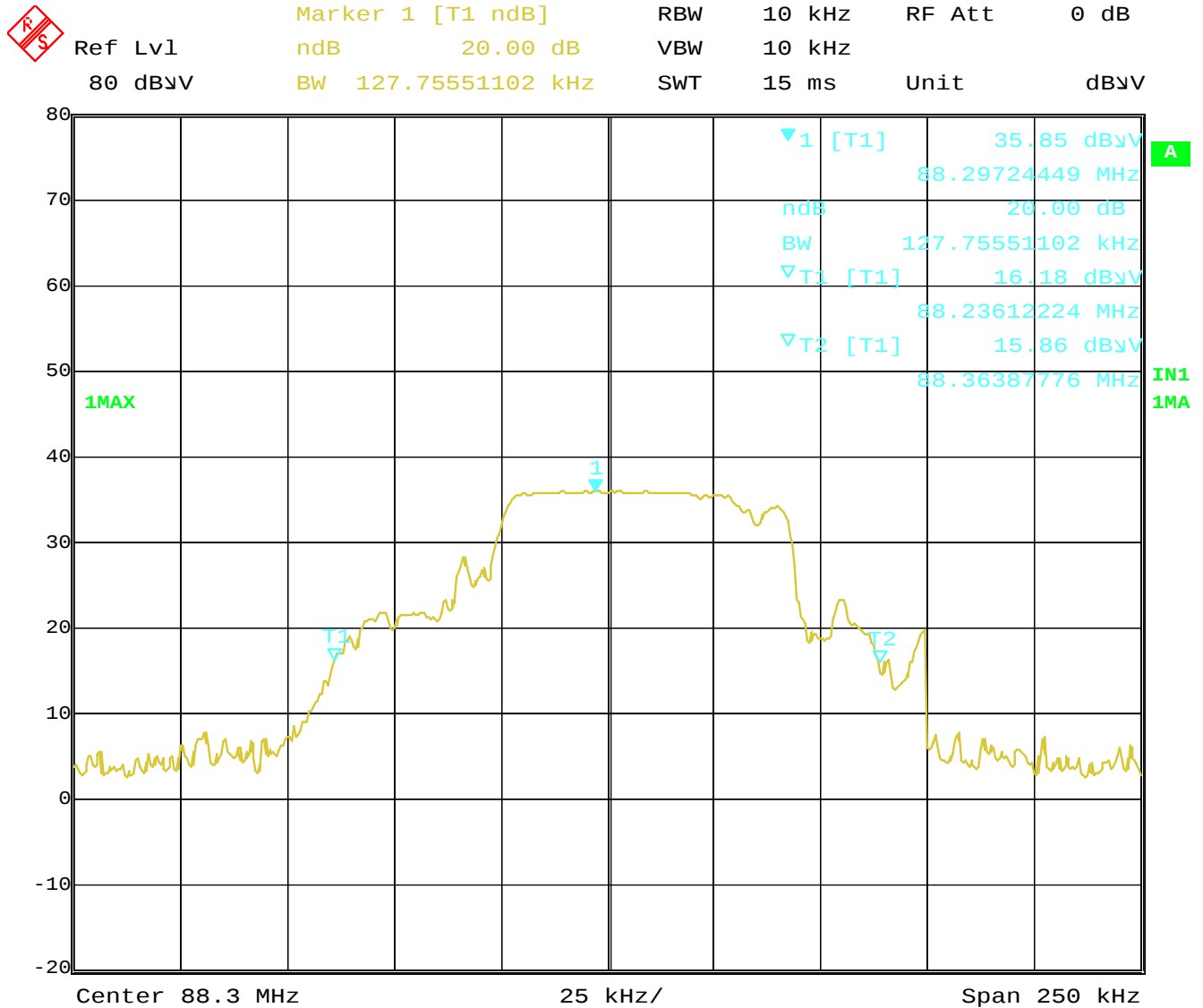


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FCC ID: MXCSCBX3010U

3.1 Emission Bandwidth

FCC Rule: 15.239(a)



Date: 20.MAY.2011 08:30:54



	Ref Lvl	Marker 1 [T1 ndB]	RBW	10 kHz	RF Att	0 dB
		ndB	20.00 dB	VBW	10 kHz	
	80 dBμV	BW 110.22044088 kHz	SWT	15 ms	Unit	dBμV



Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

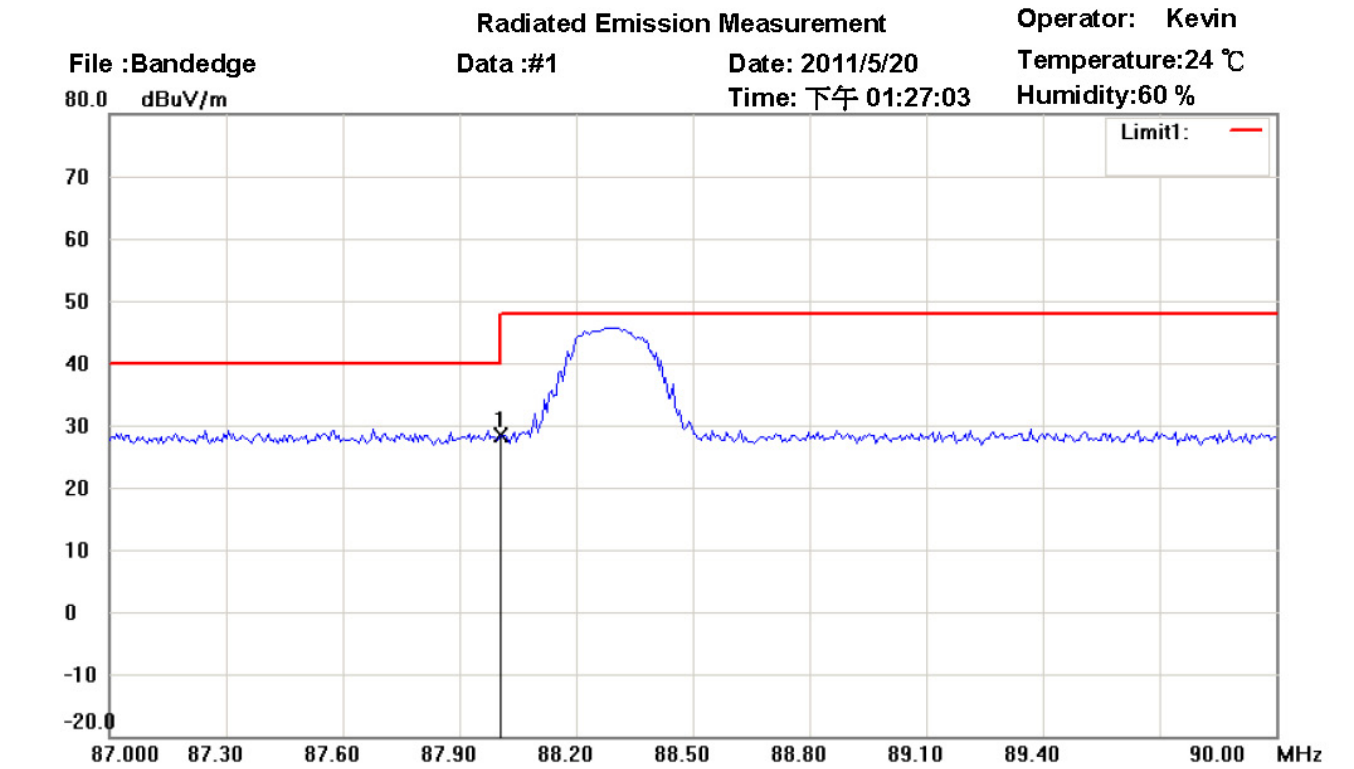
Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 043, ETSTW-RE 042



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FCC ID: MXCSCBX3010U

3.2 Band Edge Measurement

FCC Rule: 15.239(a)



Site : Chamber_01

Condition : FCC 15.239 RE(88-108MHZ)

EUT : W6M21105-11495

M/N: SCBX-3010U-XXXXX (X can be 0~9 A~Z)

Test Mode : 88.3MHz

Note :

Polarization:

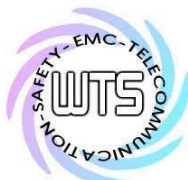
Power :

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	88.0000	17.29	peak	11.02	28.31	40.00			-11.69	

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 043, ETSTW-RE 042

Explanation: Before testing, the tuning control were manually adjusted to verify maximum tuning range. The lowest channel is 88.3 MHz and the highest channel is 90.3 MHz. For Band edge Measurement, the Upper Band-edge is not required because the highest operational frequency (90.3 MHz) is much far from the 108 MHz.



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3.3 Carrier (Field Strength)

FCC Rule: 15.239(b) , 15.35

Model: SCBX-3010U-XXXXX Date: 2011/5/20
(X CAN BE 0~9 A~Z)
Mode: 88.3 MHz Temperature: 24 °C Engineer: Kevin
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)
88.2925	33.65	peak	11.04	44.69	67.90	-23.21	65	160

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
88.2955	33.26	peak	11.04	44.30	67.90	-23.60	350	100

Mode: 90.3MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
90.2875	35.92	peak	11.16	47.08	67.90	-20.82	60	160
90.2875	35.06	AVG	11.16	46.22	47.90	-1.68	60	160

Polarization: Vertical

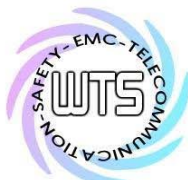
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
90.2975	35.48	peak	11.16	46.64	67.90	-21.26	350	100
90.2975	34.45	AVG	11.16	45.61	47.90	-2.29	350	100

Limit:
15.239(b)

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter (47.90 dBuV/m) at 3 meters.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 043, ETSTW-RE 042

Explanation: In this case, the average limit is met when using a peak detector, the EUT shall be deemed to meet both limits of peak and average and measurement with the average detector is unnecessary.



Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U

3.4 Spurious Emission

FCC Rules: 15.239 (c), 15.209

Radiated emission measurements were performed from 30 MHz to 1000 MHz.

For radiated emission tests, the analyzer setting was as followings:

Frequency ≤ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)

Frequency > 1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)

Frequency > 1 GHz, RBW:1 MHz, VBW: 10Hz (Average measurements)

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

Summary table with radiated data of the test plots

Model: SCBX-3010U-XXXXX
(X CAN BE 0~9 A~Z)

Date: 2011/5/20

Mode: 88.3 MHz_TX

Temperature: 24 °C

Engineer: Rick

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)
66.9338	24.98	QP	13.22	38.20	40.00	-1.80	120	100
300.2004	27.15	QP	15.94	43.09	46.00	-2.91	160	100
352.6854	26.88	QP	17.19	44.07	46.00	-1.93	40	100
500.4207	23.48	QP	20.39	43.87	46.00	-2.13	215	100
700.6413	20.01	QP	23.93	43.94	46.00	-2.06	60	100
799.7794	18.51	QP	25.74	44.25	46.00	-1.75	170	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
47.4950	23.63	QP	14.19	37.82	40.00	-2.18	220	100
142.7454	25.34	QP	15.61	40.95	43.50	-2.55	310	100
300.2004	27.40	QP	15.94	43.34	46.00	-2.66	140	100
372.1240	26.23	QP	17.66	43.89	46.00	-2.11	50	100
500.4207	22.56	QP	20.39	42.95	46.00	-3.05	110	100
801.7232	18.24	QP	25.76	44.00	46.00	-2.00	260	100



Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: MXCSCBX3010U

Mode: 90.3MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
66.9338	24.662	QP	13.22	37.88	40	-2.12	300	100
300.2004	27.474	QP	15.94	43.41	46	-2.59	110	100
360.4607	26.826	QP	17.33	44.16	46	-1.84	220	100
500.4207	23.723	QP	20.39	44.11	46	-1.89	240	100
601.5030	20.799	QP	22.75	43.55	46	-2.45	260	100
799.7794	18.409	QP	25.74	44.15	46	-1.85	165	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
47.4950	23.24	QP	14.19	37.43	40.00	-2.57	210	100
179.6793	26.30	QP	14.71	41.01	43.50	-2.49	125	100
300.2004	27.21	QP	15.94	43.15	46.00	-2.85	140	100
496.5330	22.88	QP	20.34	43.22	46.00	-2.78	200	100
700.6413	19.25	QP	23.93	43.18	46.00	-2.82	170	100
799.7794	18.31	QP	25.74	44.05	46.00	-1.95	310	100

- 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. Please see attached diagram in the appendix.**

Limits: 15.209

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 042, ETSTW-RE 043,
ETSTW-RE 030, ETSTW-RE 044



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.

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 004, ETSTW-CE 006

Explanation: This test item is not applicable due to the EUT is fed by 12V car power supply.



Appendix

A Measurement diagrams

1. Spurious Emissions

B Photos

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



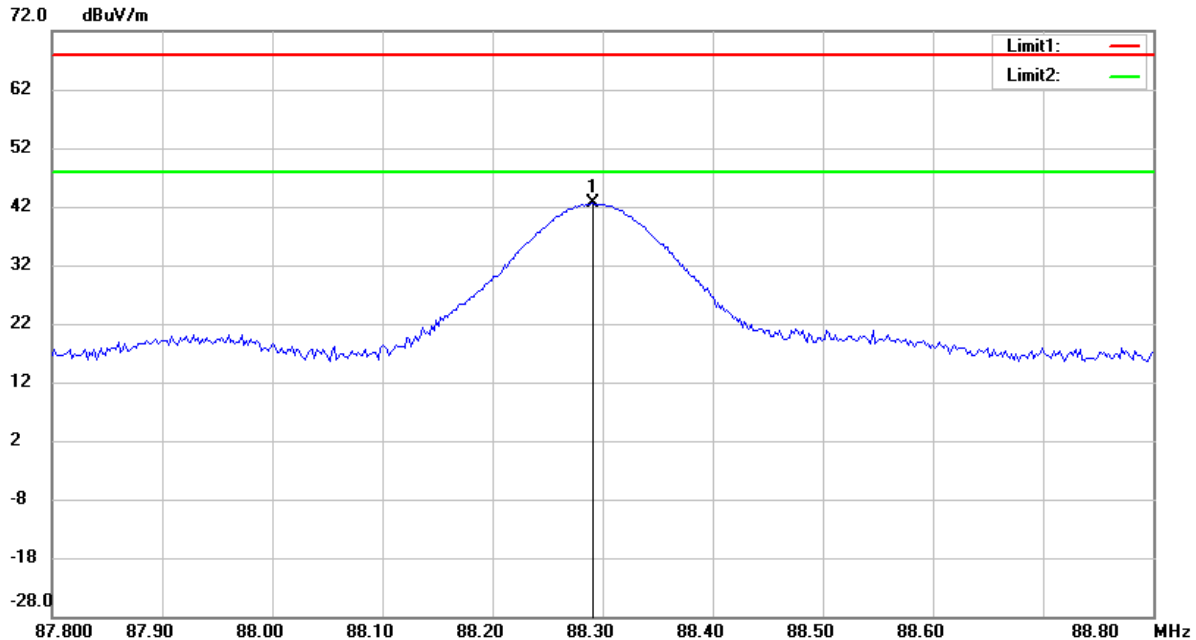
Registration number: W6M21105-11495-P-15

FCC ID: MXCSCBX3010U

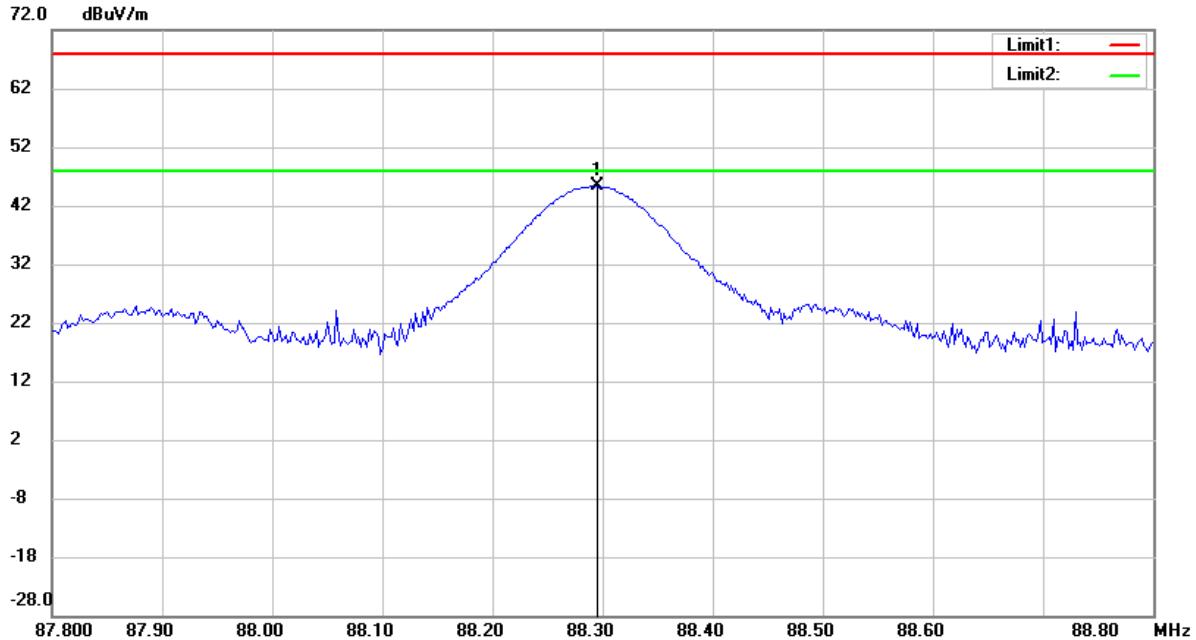
Carrier Field Strength

88.3 MHz

Antenna Polarization H



Antenna Polarization V



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 Carrier Field Strength test data of this test report.

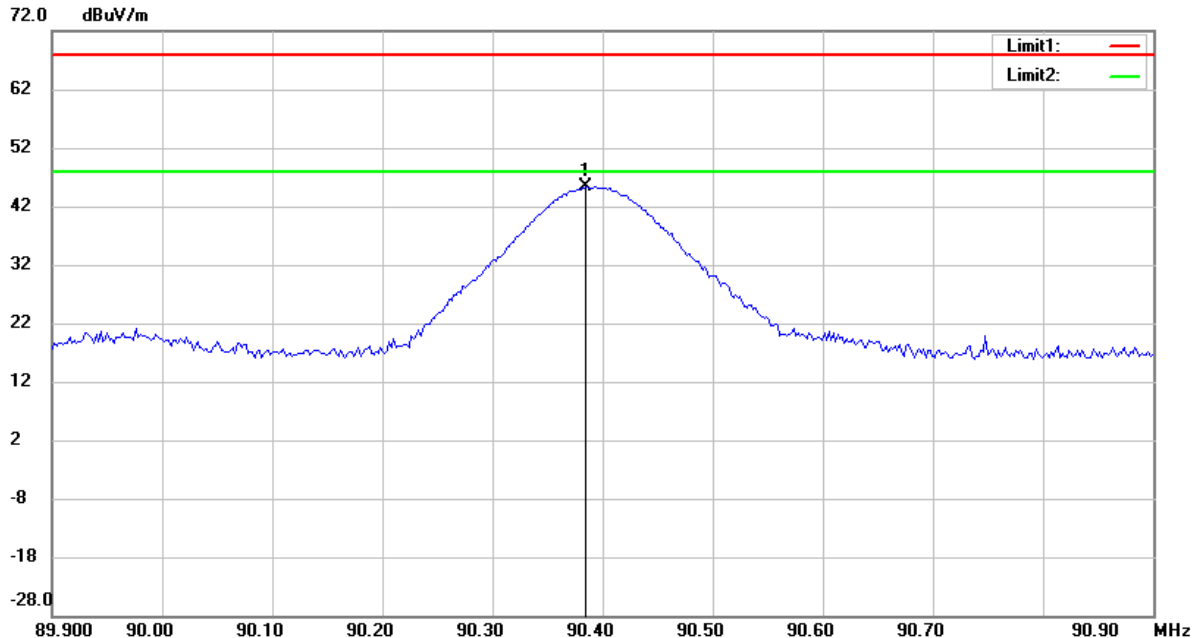


Registration number: W6M21105-11495-P-15

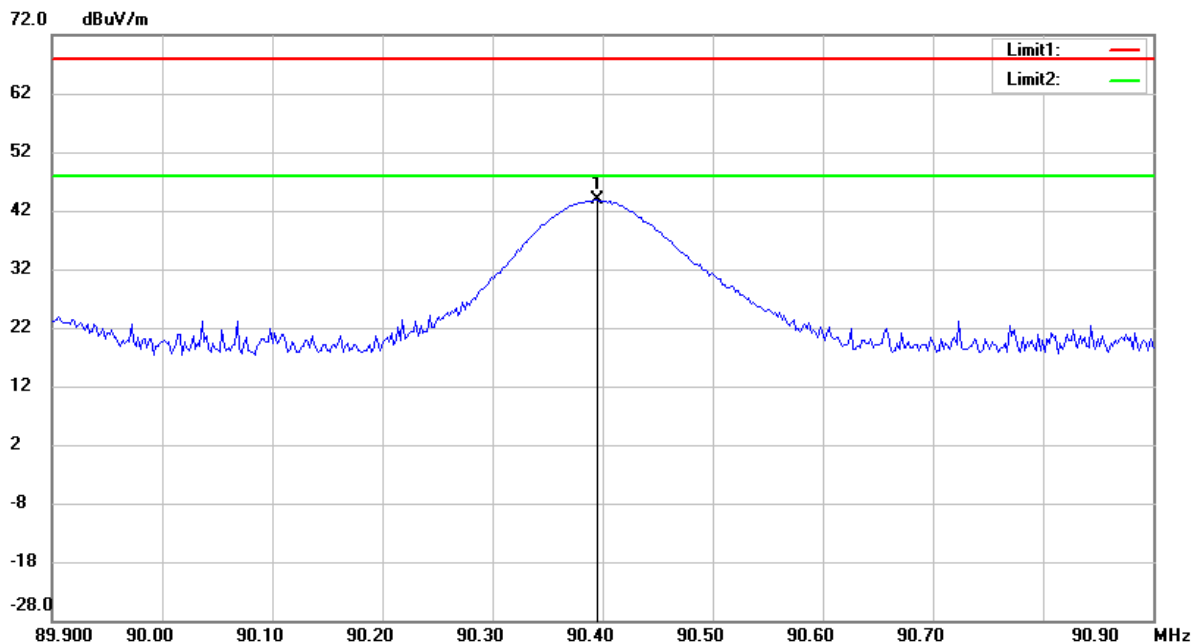
FCC ID: MXCSCBX3010U

90.3 MHz

Antenna Polarization H



Antenna Polarization V



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 Carrier Field Strength test data of this test report.

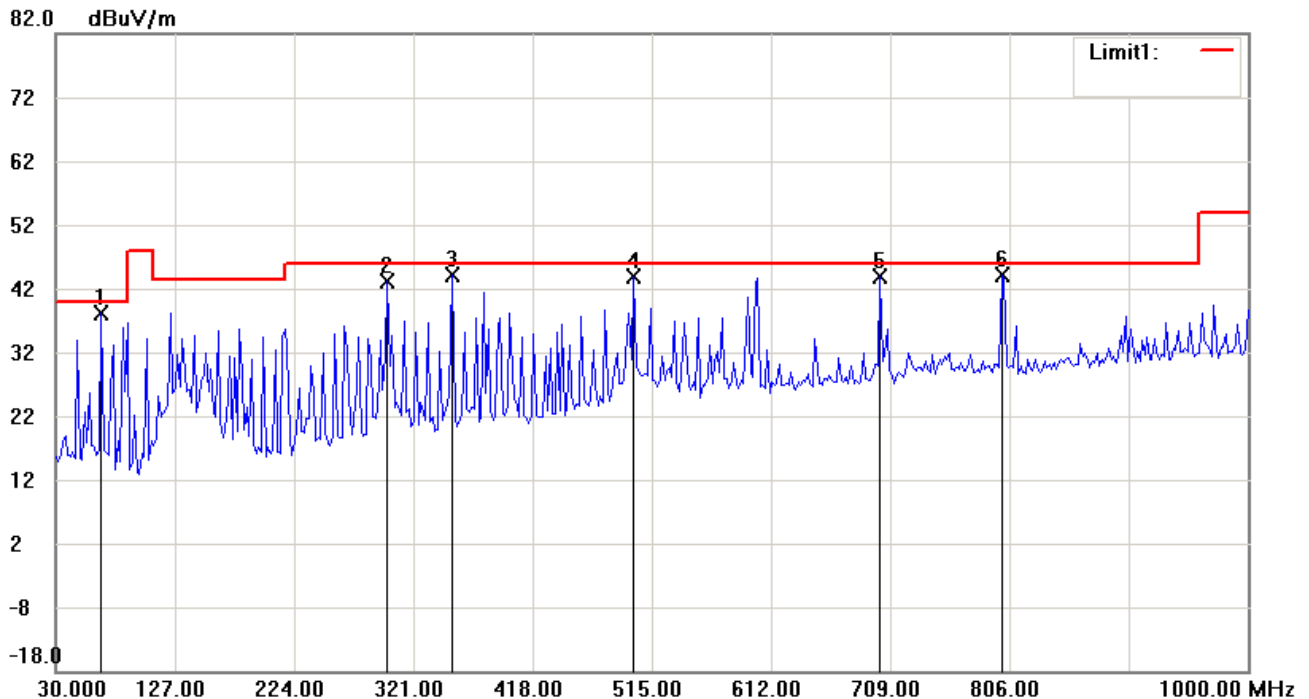


Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U

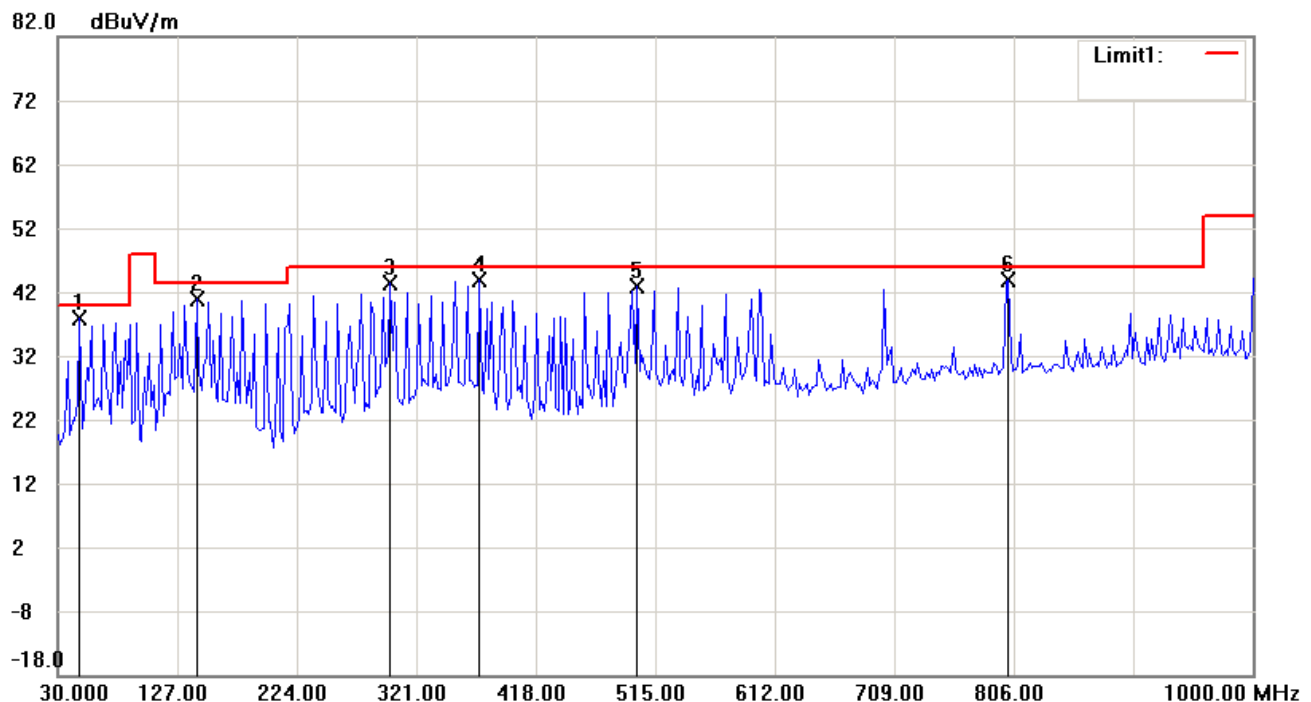
Spurious Emissions

88.3 MHz

Antenna Polarization H



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.

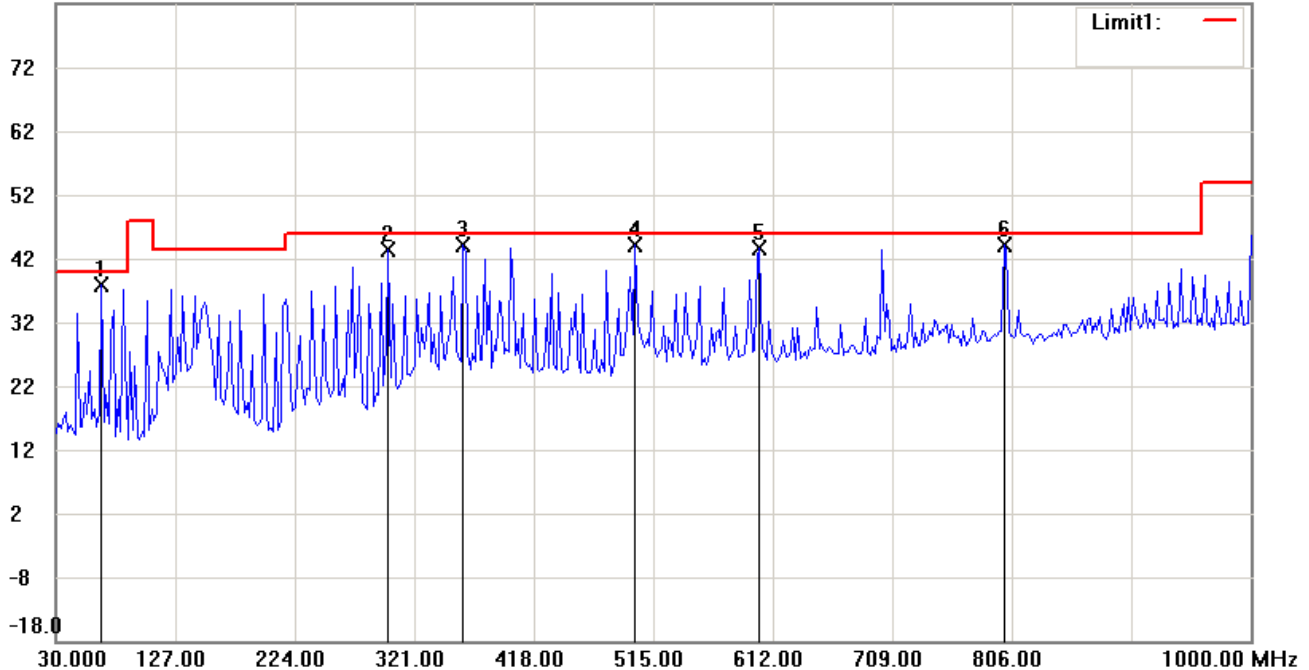
Registration number: W6M21105-11495-P-15

FCC ID: MXCSCBX3010U

90.3 MHz

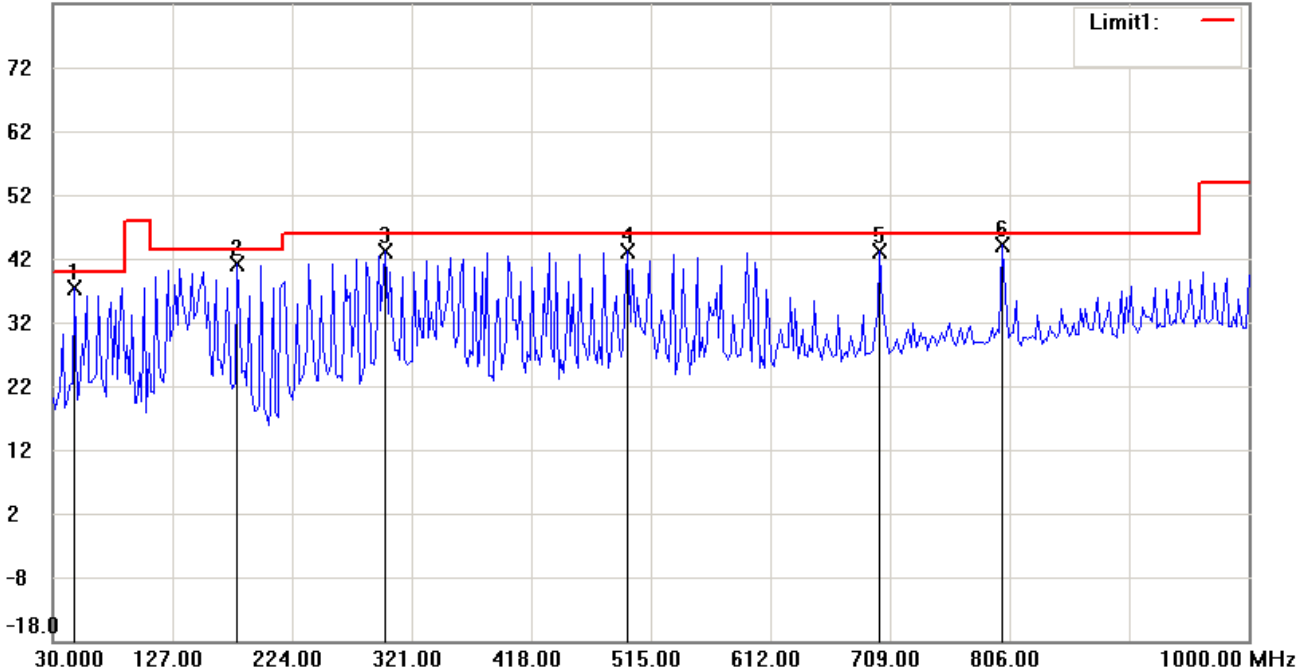
Antenna Polarization H

82.0 dBuV/m



Antenna Polarization V

82.0 dBuV/m



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.



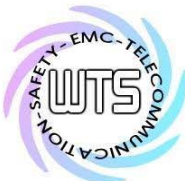
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Registration number: W6M21105-11495-P-15

FCC ID: MXCSCBX3010U

External Photos

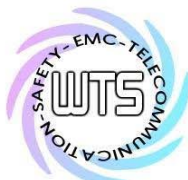




Worldwide Testing Services(Taiwan) Co., Ltd.

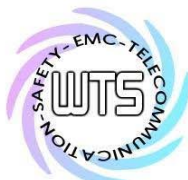
Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U





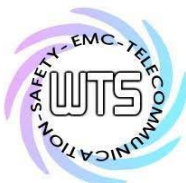
Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U





Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U

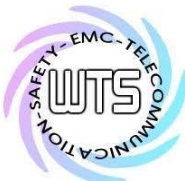




Worldwide Testing Services(Taiwan) Co., Ltd.

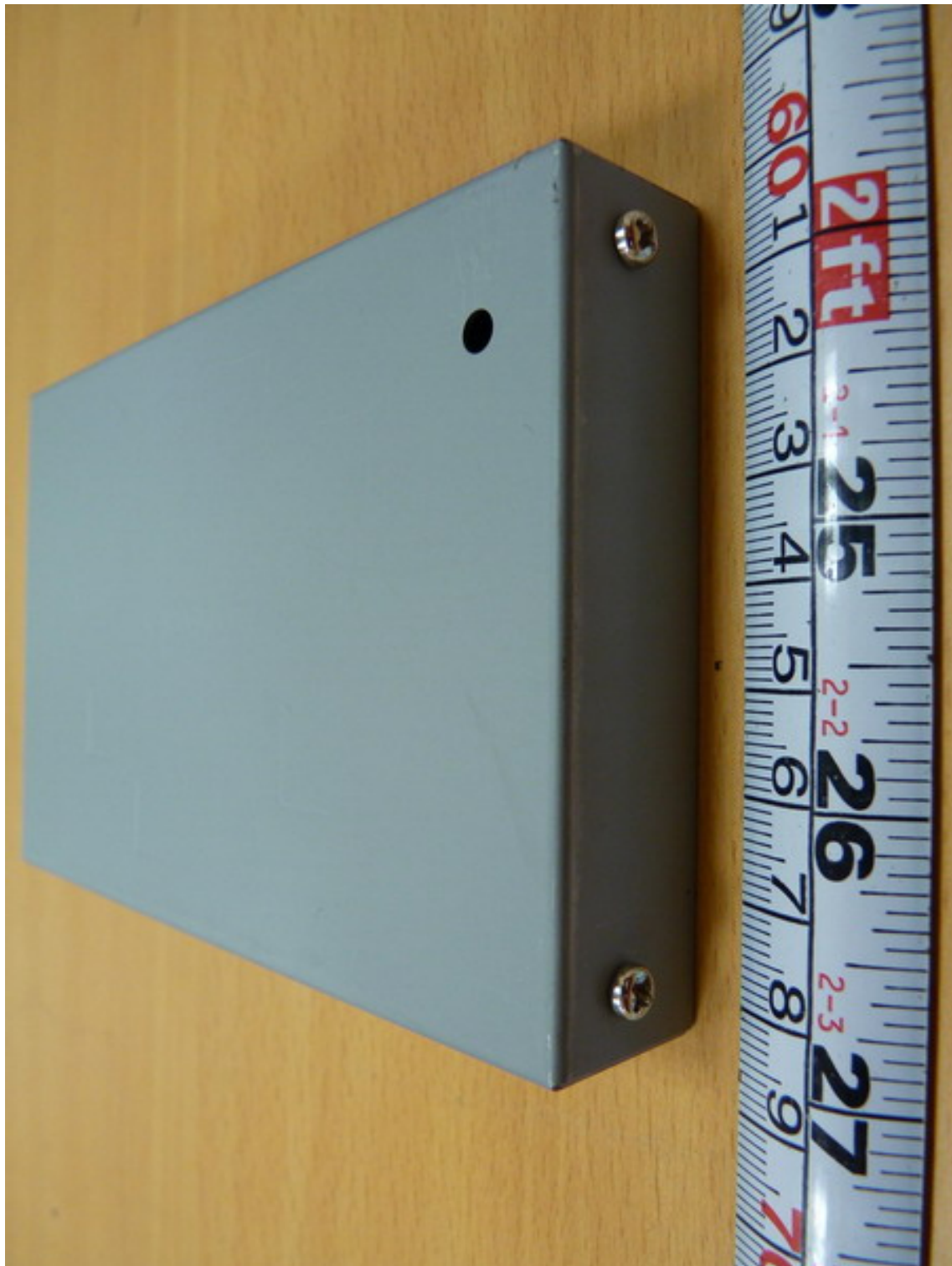
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FCC ID: MXCSCBX3010U





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Registration number: W6M21105-11495-P-15
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Registration number: W6M21105-11495-P-15

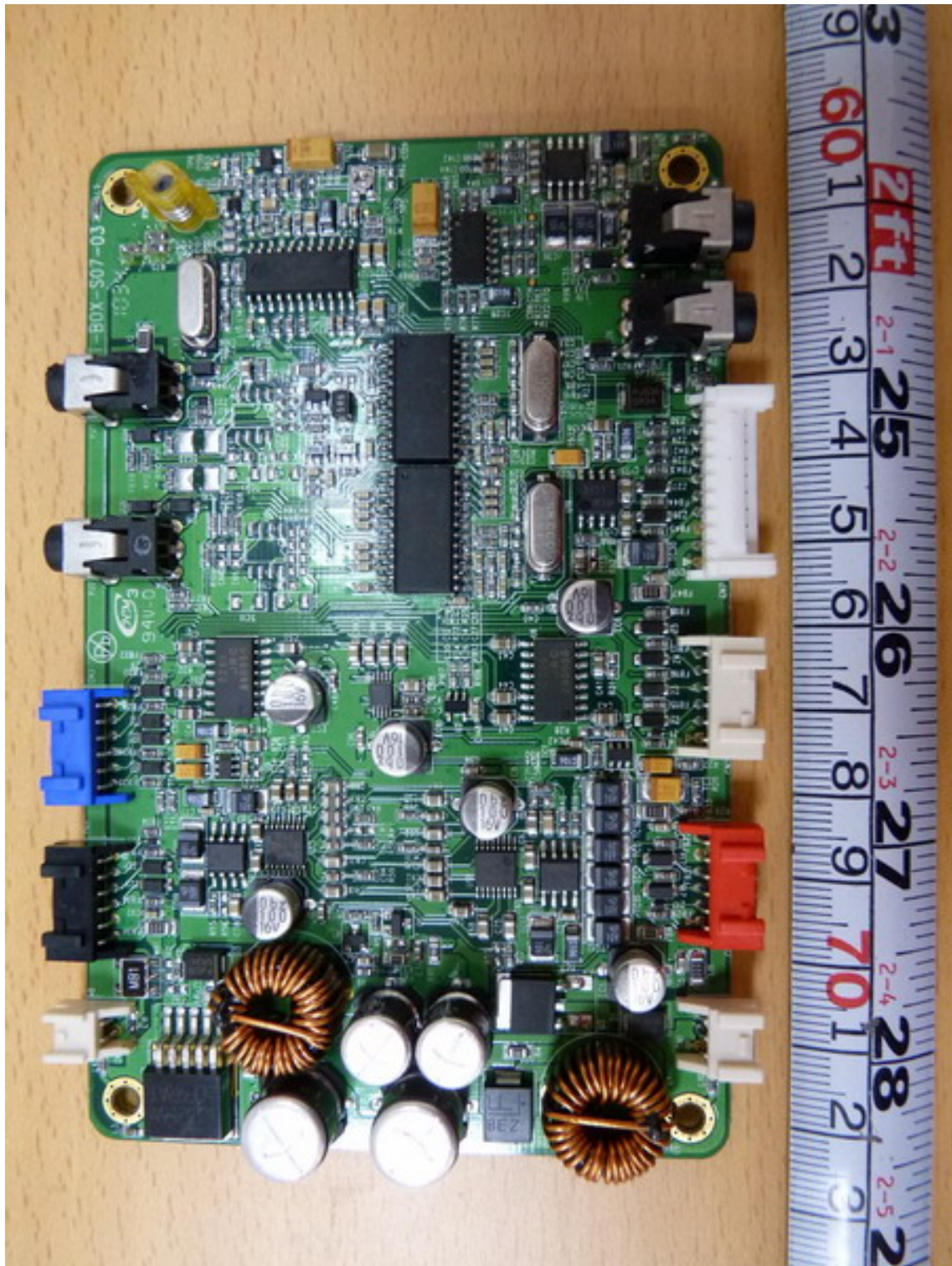
FCC ID: MXCSCBX3010U

Internal Photos





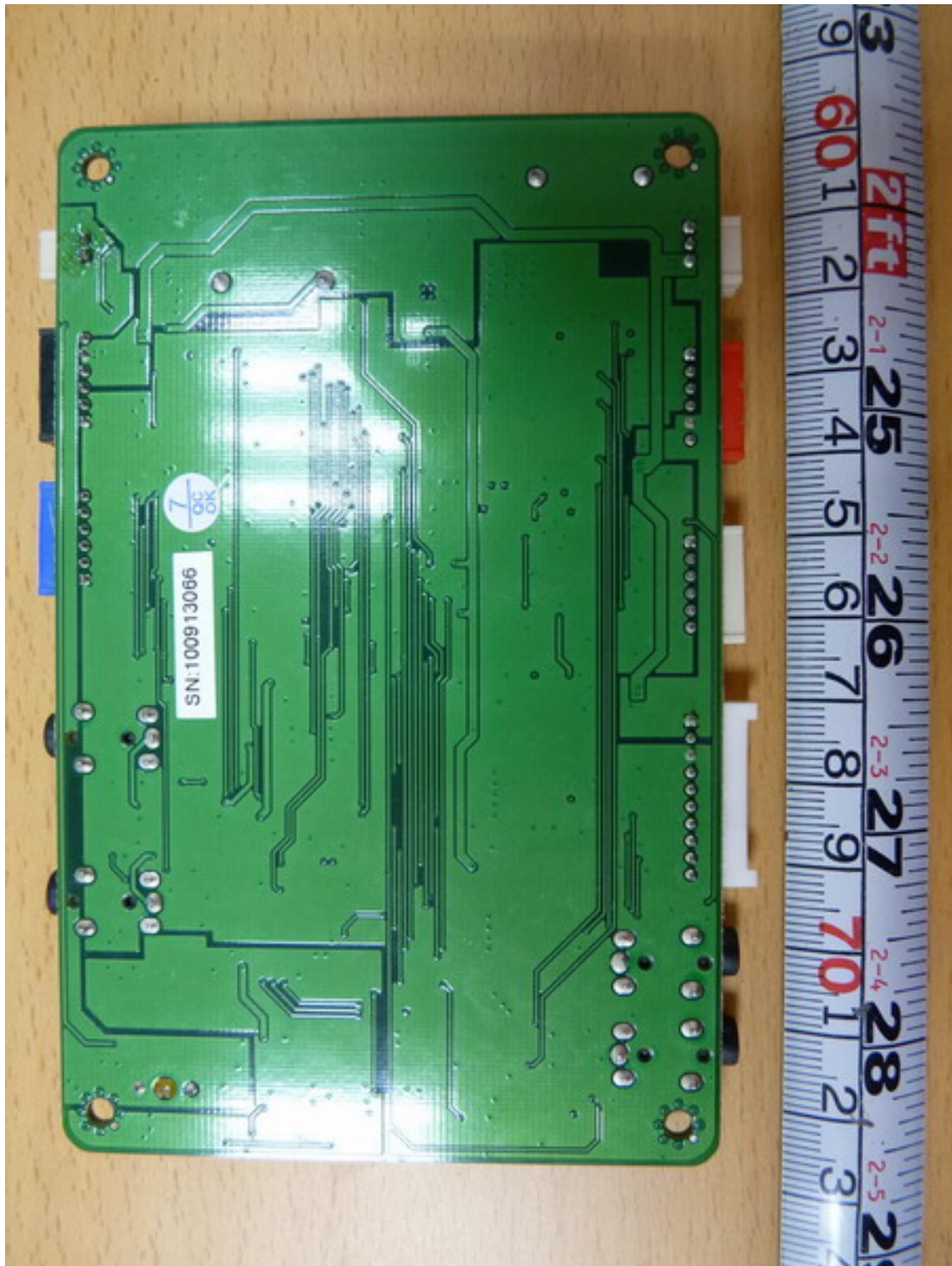
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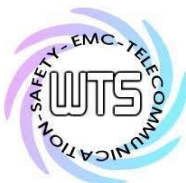




Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21105-11495-P-15
FCC ID: MXCSCBX3010U





Registration number: W6M21105-11495-P-15

FCC ID: MXCSCBX3010U

Set Up Photo of Radiated Emission

