FCC/IC Radio Test Report

FCC ID: OMOTX-14TH
IC: 5049A-TX14TH

This report concerns (check one) : ■ Original Grant □ Copy Report

Issued Date	:	May. 17, 2012
Project No.	:	1205C052
Equipment	:	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm
Model Name	:	TX-14TH-LCD;TX-14TH
Applicant for FCC	:	La Crosse Technology Ltd.
Applicant for IC	:	LA CROSSE TECHNOLOGY LTD.
Address for FCC	:	2809 Losey Blvd. South La Crosse WI United States 54601
Address for IC	:	2809 Losey Blvd. S. La Crosse Wisconsin 54601 United States

Tested by:
Neutron Engineering Inc. EMC Laboratory
Date of Receipt: May. 08, 2012
Date of Test:
May. 08, 2012 ~ May. 16, 2012

Testing Engineer : (David Mao)

Technical Manager : (Leo Hung)

Authorized Signatory : (Steven Lu)

Neutron Engineering Inc.

No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.
TEL : (0769) 8318-3000 FAX : (0769) 8319-6000

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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1. CERTIFICATION

Equipment:	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm
Trade Name :	LA CROSSE
Model Name. :	TX-14TH-LCD; TX-14TH
Applicant:	La Crosse Technology Ltd. (For FCC) LA CROSSE TECHNOLOGY LTD.(For IC)
Date of Test:	May. 08, 2012 ~ May. 16, 2012
Test Item:	ENGINEERING SAMPLE
Standards:	FCC Part15, Subpart C(15.231)/ ANSI C63.4 : 2009; Canada RSS-210:2010

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FICP-1-1205C052) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C (15.231)				
Standard Section		Test Item	Judgment	Remark
	15.207	Conducted Emission	-	N/A
RSS-210 2.7 Table 5	15.209 & 15.231(e)	Radiated Spurious Emission	PASS	
RSS-210 A1.1.3	15.231(c)	20dB Occupied Bandwidth Measurement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792
Neutron's test firm number for FCC 319330
Neutron's test firm number for IC 4428B-1

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
DG-CB03	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm
Trade Name	LA CROSSE
Model Name.	TX-14TH-LCD; TX-14TH
OEM Brand/Model Name	N/A
Model Difference	Only differ in model name and LCD display screen(The model TX-14TH-LCD with LCD display screen, model TX-14TH without LCD display screens)
Product Description	The EUT is a Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm. Product Type: Low Power Communication Device Operation Frequency: 433.92 MHz Modulation Type: ASK Number Of Channel: 1CH Antenna Designation: Integral antenna Field Strength: 71.95dBuV/m (AV Max.) Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 2.
Power Source	DC Voltage supplied from 2*AA size battery.
Power Rating	DC 3.0V
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Freqeuncy Band	Channel No.	Frequency
	1	433.92 MHz

3.2 DESCRIPTION OF TEST MODES

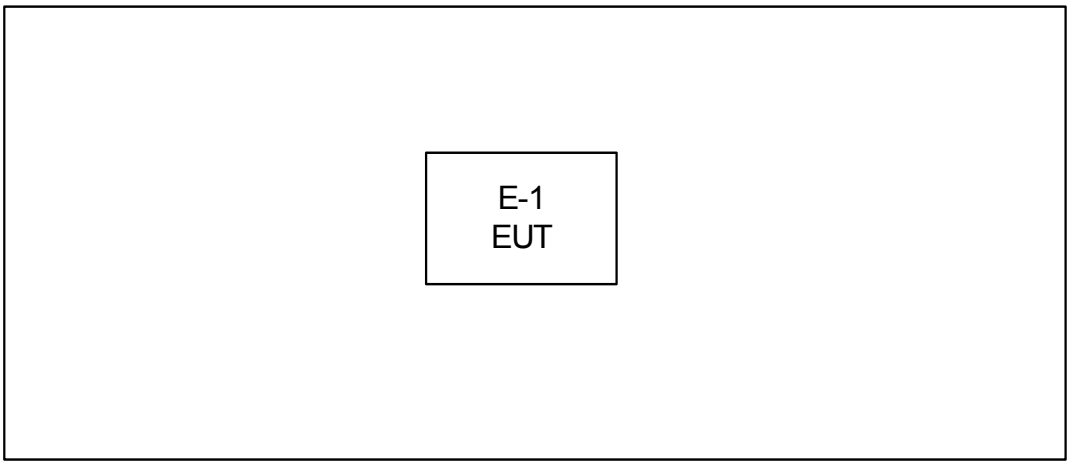
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX CH 433.92MHz

For Conducted Test	
Final Test Mode	Description
-	"N/A" denotes test is not applicable in this Test Report

For Radiated Test	
Final Test Mode	Description
Mode 1	TX CH 433.92MHz

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID/IC ID	Series No.	Note
E-1	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	LA CROSSE	TX-14TH-LCD	OMOTX-14TH/ 5049A-TX14TH	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2SH	00052766	May.26.2012
2	LISN	R&S	ENV216	100526	May.26.2012
3	Test Cable	N/A	RG400 12m	N/A	Mar.14.2013
4	EMI TEST RECEIVER	R&S	ESCI	100895	May.26.2012
5	50Ω Terminator	SHX	TF2-3G-A	08122901	May.26.2012

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

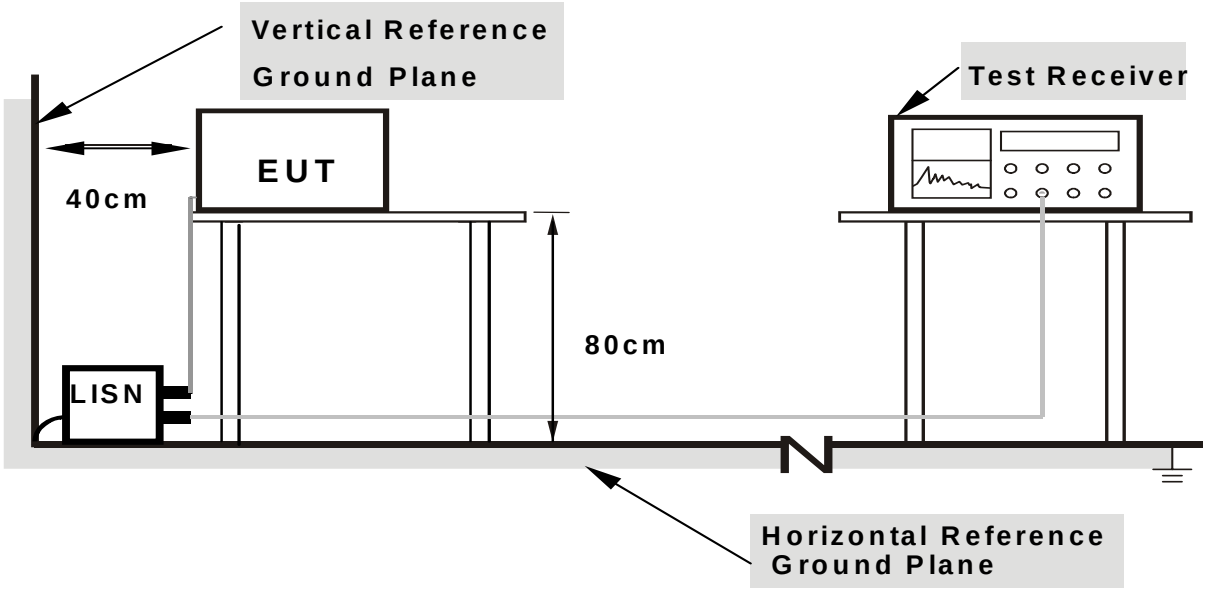
4.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.7 TEST RESULTS

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	--	Relative Humidity：	--
Pressure：	--	Test Power ：	--
Test Mode ：	” N/A” denotes test is not applicable in this Test Report.		

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn‘t perform。In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured。

(2) Measuring frequency range from 150KHz to 30MHz.

(3) ” N/A” denotes test is not applicable in this Test Report.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1. FIELD STRENGTH OF FUNDAMENTAL EMISSIONS MEASUREMENT LIMIT

Frequency Band (MHz)	Fundamental Emissions Limit (uV/m) at 3m
40.66-40.70	1000
70-130	500
130-174	500-1500(**)
174-260	1500
260-470	1500-5000(**)
Above 470	5000

**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130 - 174 MHz, μV/m at 3 meters = 22.72727×(operating frequency, MHz) - 2454.545;

(2) for the band 260 - 470 MHz, μV/m at 3 meters = 16.6667×(operating frequency, MHz) - 2833.3333.

So the field strength of emission limits have been calculated in below table.

Carrier Frequency (MHz)	Fundamental Emissions Limit (dBuV/m) at 3m
433.92 MHz	72.87 (Average)
433.92 MHz	92.87 (Peak)

4.2.2. MEASURING INSTRUMENTS AND SETTING (FIELD STRENGTH OF FUNDAMENTAL EMISSIONS)

Receiver Parameter	Setting
Attenuation	Auto
Center Frequency	Fundamental Frequency
RBW	120 kHz
Detector	Peak / Average

4.2.3 RADIATED EMISSIONS MEASUREMENT

Devices complying with 47 CFR FCC part 15 subpart C, section 15.231(e). The field strength of emissions from intentional radiators at 3 meters operated under this Section shall not exceed the following:

Frequency Band (MHz)	Spurious Emissions Limit (uV/m) at 3m
40.66-40.70	100
70-130	50
130-174	50-150(**)
174-260	150
260-470	150-500(**)
Above 470	500

**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130 - 174 MHz, μV/m at 3 meters = 22.72727×(operating frequency, MHz) - 2454.545;

(2) for the band 260 - 470 MHz, μV/m at 3 meters = 16.6667×(operating frequency, MHz) - 2833.3333.

(3)The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in Section 15.209(a).

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, AV Mode with Dwell time
RB / VB (other emission)	100KHz / 100KHz for peak

Dwell time=ON/ON+OFF

ON:(0.8ms*31=24.8msec)，

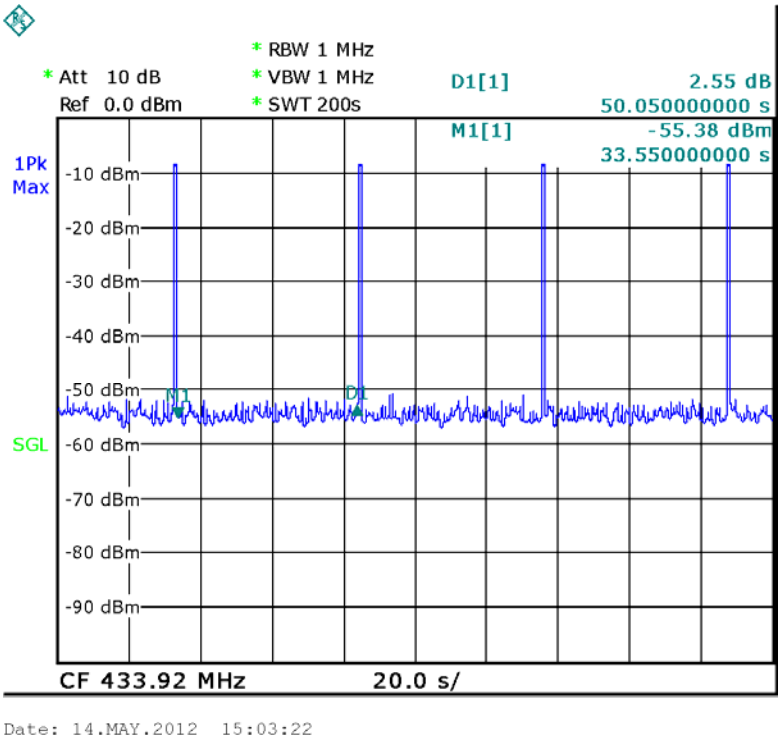
ON+OFF:(total time):100ms
Duty Cycle = 24.8/100msec=24.8%

AV=PK+20 log(Dwell time)

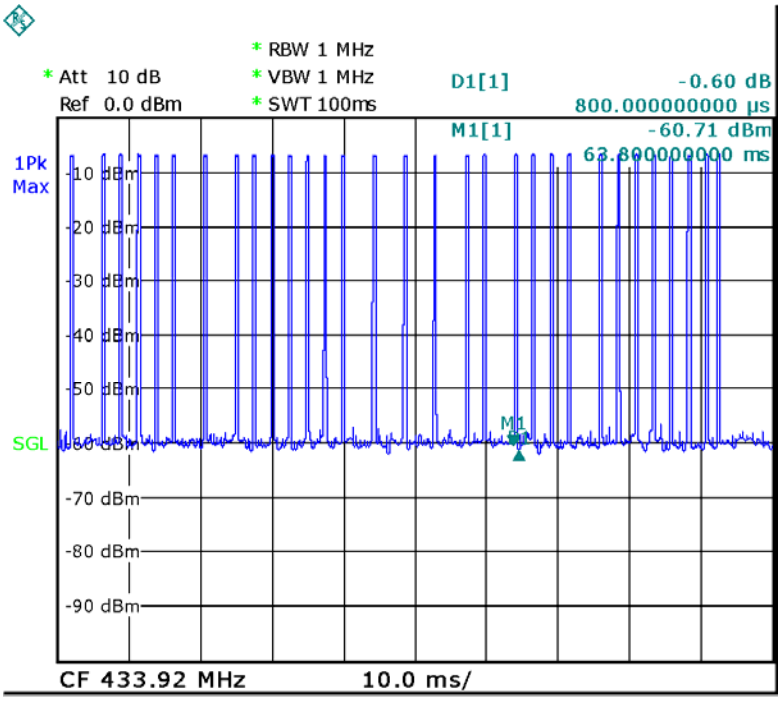
AV=PK-12.11

4.2.4. DWELL TIME OF PERIODIC OPERATION MEASUREMENT

Total time(ON+OFF)



ON Time= 0.8msec*31



4.2.5. MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Triple Loop Antenna	R&S	HFH2-Z2	830749/020	May.26.2012
2	Bi-log Antenna	Schwarbeck	VULB9160	9160-3232	May.25.2012
3	Horn Antenna	ETS	3115	00075789	May.10.2013
4	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170340	Dec.15.2011
5	Amplifier	HP	8447D	2944A09673	May.25.2012
6	Amplifier	Agilent	8449B	3008A02274	May.25.2012
7	Amplifier	EMC	EMC2654045	980039	Aug.12.2011
8	Test Receiver	R&S	ESCI	100895	May.25.2012
9	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2012
10	Test Cable	N/A	C-01_CB03	N/A	Jul.04.2012
11	Test Cable	HUBER+SUHNER	SUCOFLEX_8 m	313794/4	Apr.10.2013
12	Controller	CT	SC100	N/A	N/A

Remark: ” N/A” denotes No Model Name. / Serial No. and No Calibration specified.

4.2.6. TEST PROCEDURE

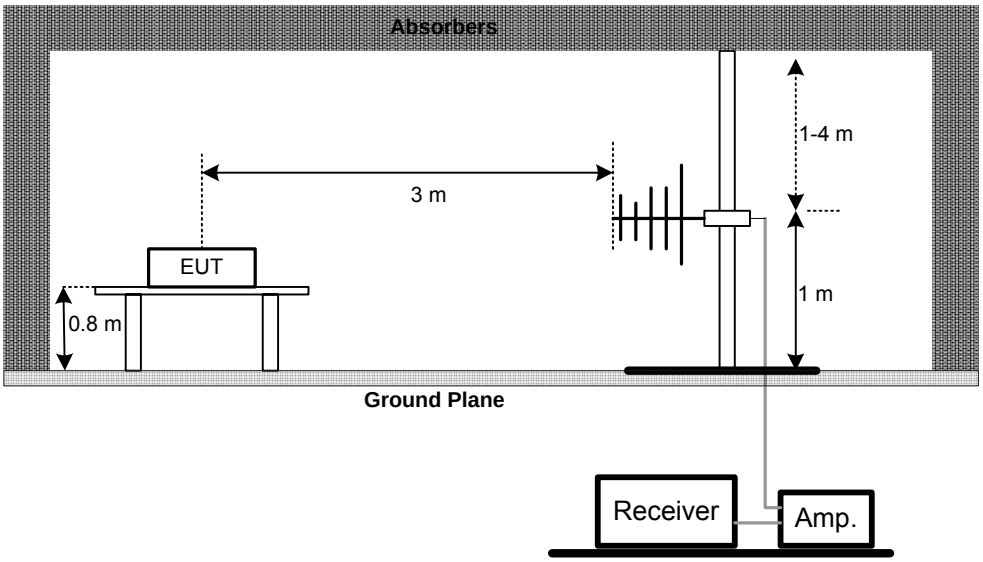
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.7. DEVIATION FROM TEST STANDARD

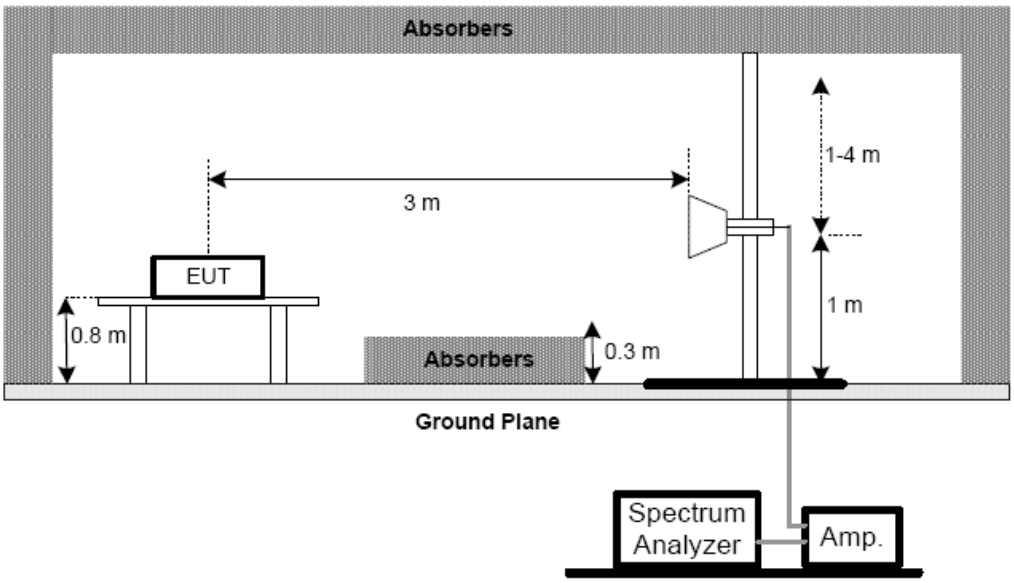
No deviation

4.2.8. TEST SETUP

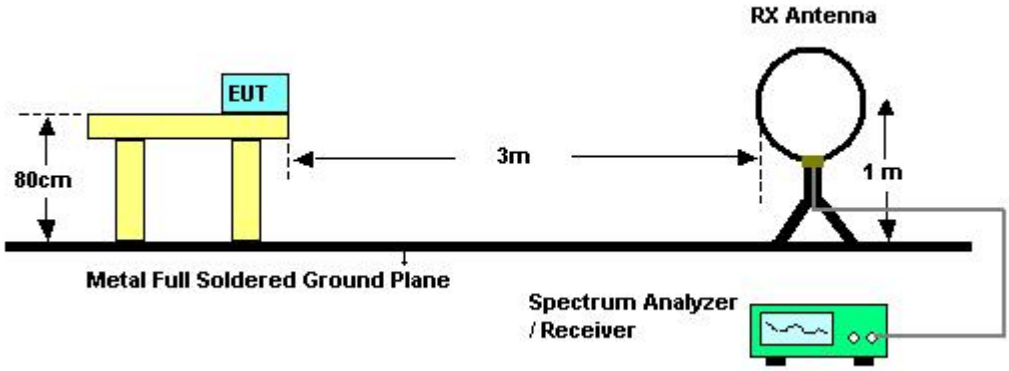
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



4.2.9. EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.3. TEST RESULTS ((BELOW 30MHz))

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	24 ℃	Relative Humidity：	50 %
Pressure：	1010hPa	Test Power ：	DC 3.0V
Test Mode ：	TX Mode		

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.010	0°	20.17	24.30	44.47	127.87	-83.40	AV
0.010	0°	22.72	24.30	47.02	147.87	-100.85	PK
0.025	0°	18.24	24.01	42.25	119.81	-77.56	AV
0.025	0°	21.05	24.01	45.06	139.81	-94.75	PK
0.037	0°	17.83	23.19	41.02	116.13	-75.11	AV
0.037	0°	22.52	23.19	45.71	136.13	-90.42	PK
0.07	0°	19.57	22.06	41.63	11.06	30.57	AV
0.07	0°	24.18	22.06	46.24	131.06	-84.82	PK
0.26	0°	21.40	20.39	41.79	99.44	-57.66	AVG
0.26	0°	23.69	20.39	44.08	119.44	-75.37	PK
1.26	0°	24.42	19.57	43.99	65.58	-21.59	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.010	90°	17.25	24.30	41.55	127.85	-86.30	AVG
0.010	90°	21.34	24.30	45.64	147.85	-102.21	PK
0.026	90°	15.37	23.93	39.30	119.36	-80.06	AVG
0.026	90°	19.82	23.93	43.75	139.36	-95.61	PK
0.035	90°	17.96	23.36	41.32	116.74	-75.43	AVG
0.035	90°	22.35	23.36	45.71	136.74	-91.04	PK
0.06	90°	20.68	22.10	42.78	111.38	-68.59	AVG
0.06	90°	24.52	22.10	46.62	131.38	-84.75	PK
0.24	90°	21.31	20.43	41.74	100.13	-58.40	AVG
0.24	90°	23.68	20.43	44.11	120.13	-76.03	PK
1.25	90°	23.76	19.57	43.33	65.64	-22.30	QP

Remark：

(1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported ◦

(2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB); ◦

(3) Limit line = specific limits (dBuV) + distance extrapolation factor. ◦

4.3.1 TEST RESULTS (BETWEEN 30 – 1000 MHz)

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	24 ℃	Relative Humidity：	50 %
Pressure：	1010hPa	Test Power ：	DC 3.0V
Test Mode ：	TX Mode		
About the duty cycle correction factor calculated, please refer to the page 17~18			

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Result
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
433.92	**V**	**92.45**	**80.34**	**-8.39**	**84.06**	**71.95**	**92.87**	**72.87**	**X/F**
867.84	V	50.35	38.24	-0.57	49.78	37.67	72.87	52.87	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

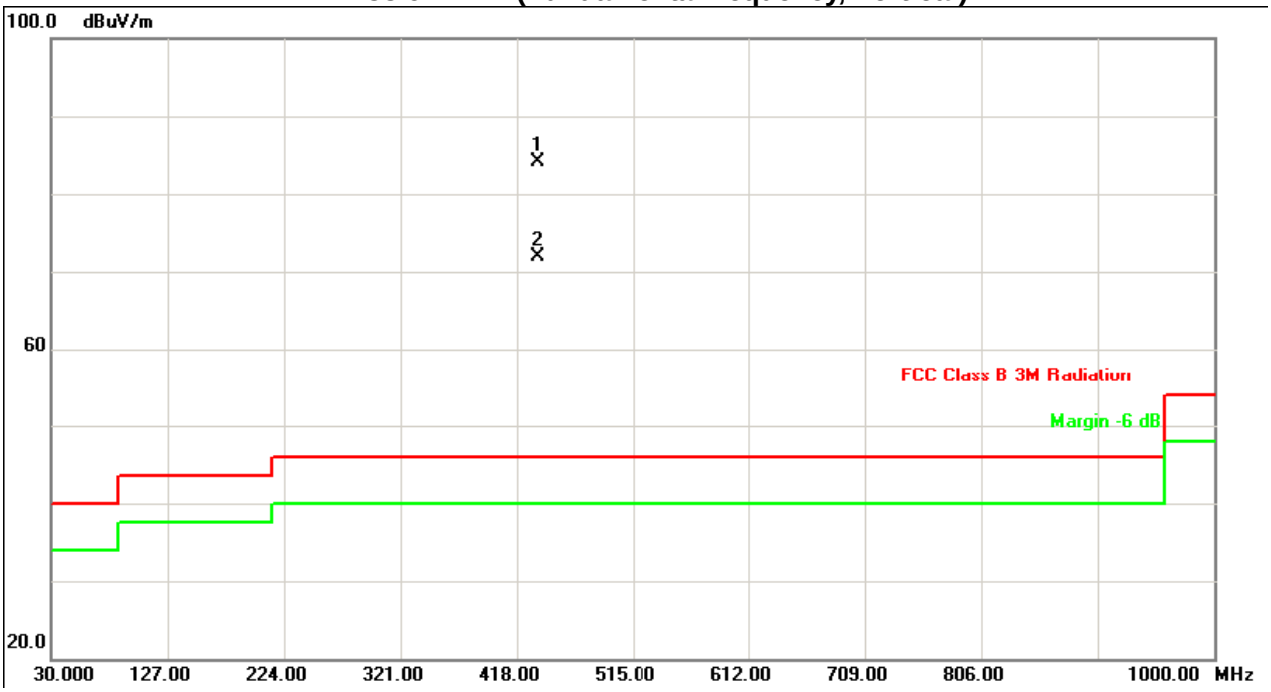
(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

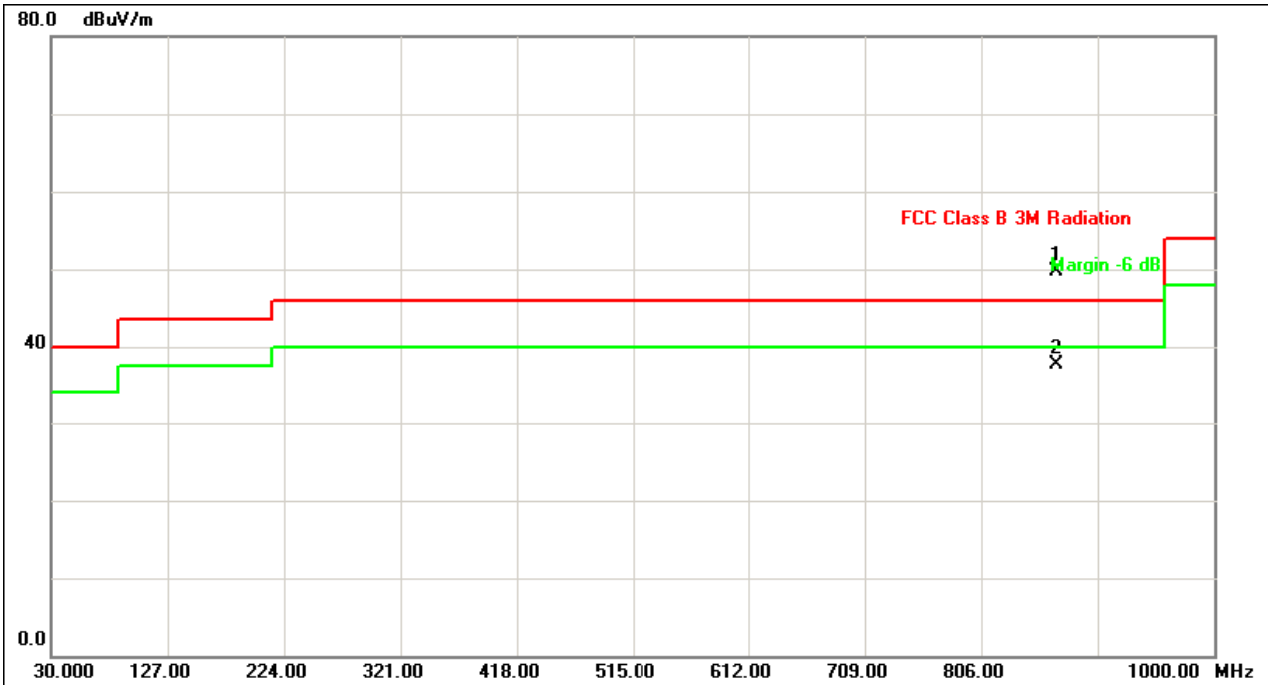
(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ，Final AV=PK-12.11

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Orthogonal Axis：X
TX 433.92 MHz (Fundamental frequency, Vertical)





EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	24 ℃	Relative Humidity：	50 %
Pressure：	1010hPa	Test Power ：	DC 3.0V
Test Mode ：	TX Mode		
About the duty cycle correction factor calculated, please refer to the page 17~18			

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Result
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
433.92	**H**	**91.28**	**77.18**	**-8.39**	**82.89**	**68.79**	**92.87**	**72.87**	**X/F**
867.84	H	47.07	34.96	-0.57	46.50	34.39	72.87	52.87	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

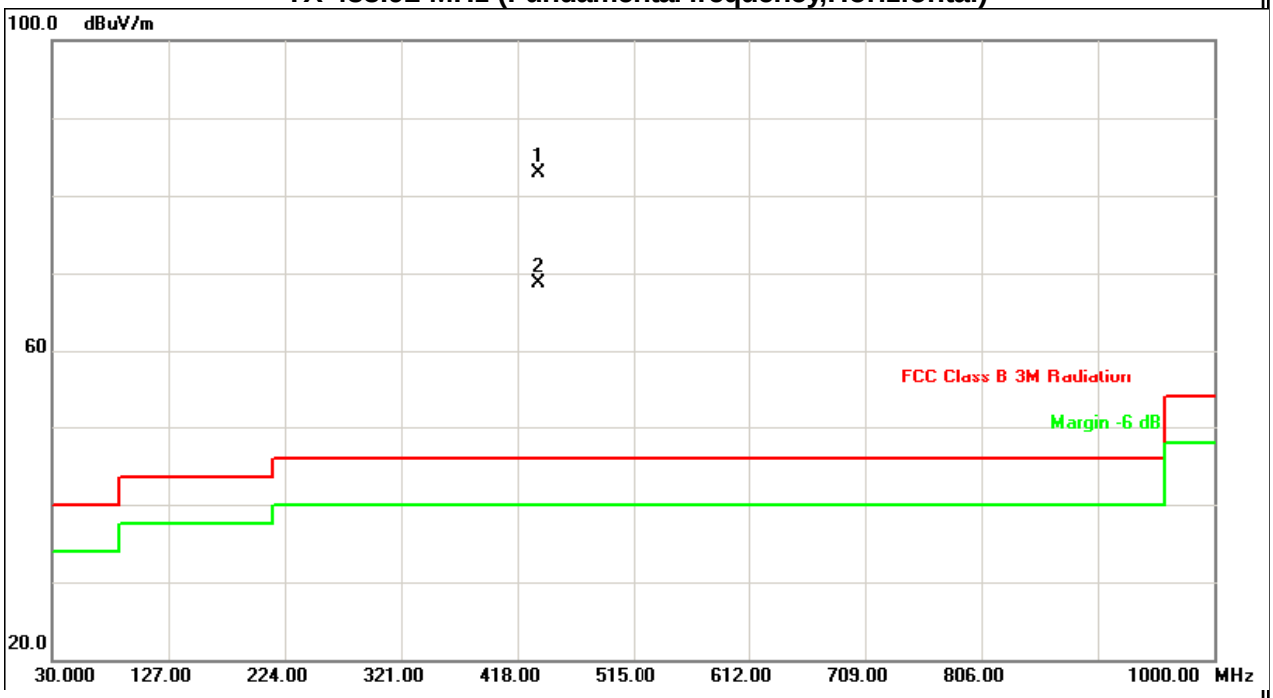
(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

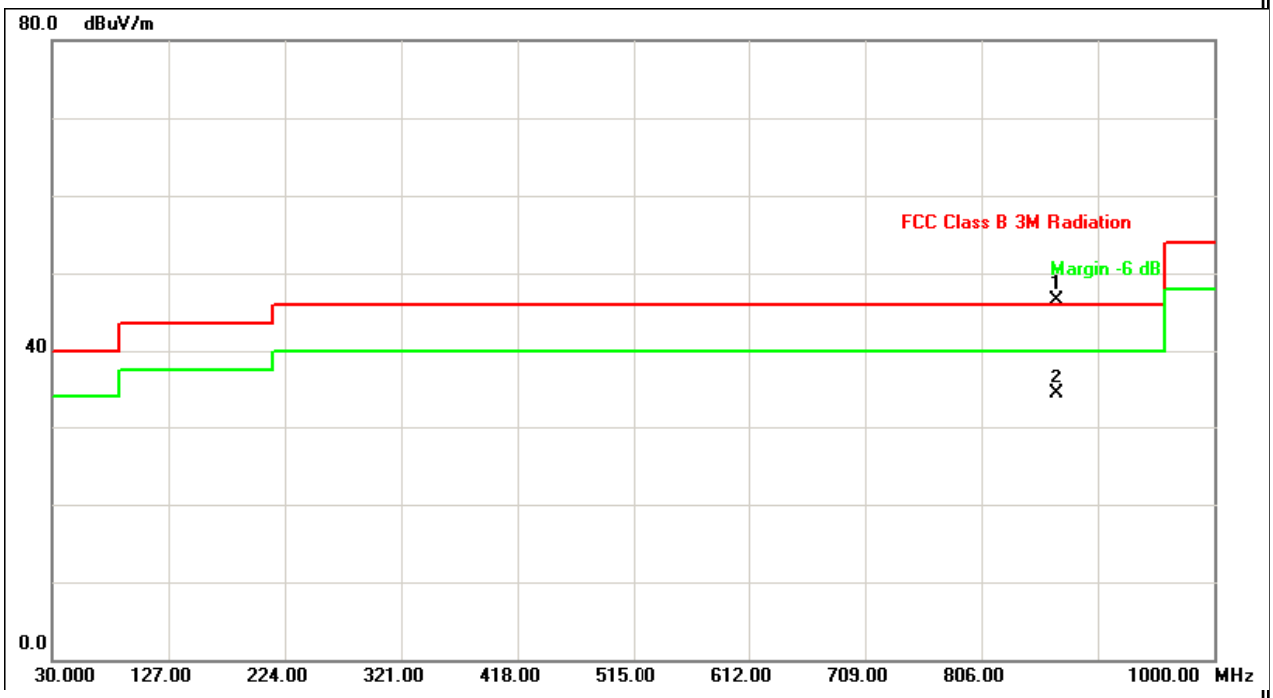
(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ，Final AV=PK-12.11

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Orthogonal Axis：X
TX 433.92 MHz (Fundamental frequency,Horizontal)





4.3.2 TEST RESULTS (ABOVE 1000 MHz)

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	24 ℃	Relative Humidity：	50 %
Pressure：	1010hPa	Test Power ：	DC 3.0V
Test Mode ：	TX CH 433.92 MHz		
About the duty cycle correction factor calculated, please refer to the page 17~18			

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
1301.75	V	45.48	33.37	-7.48	38.00	25.89	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

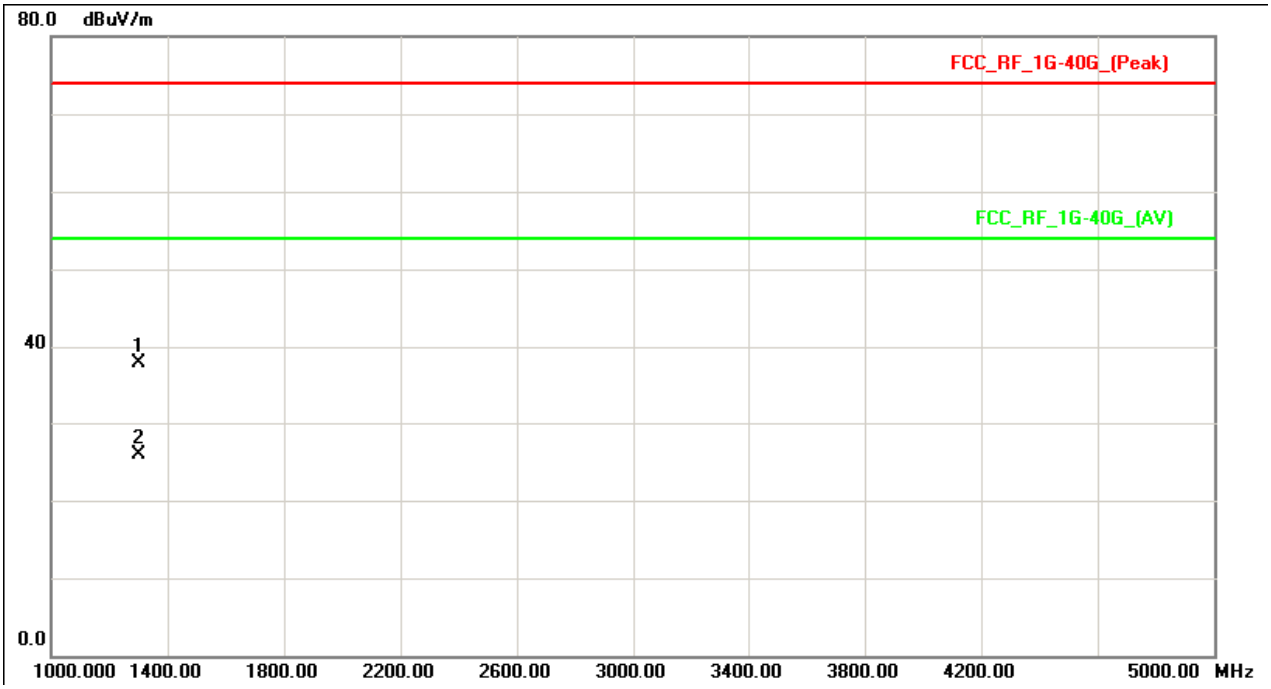
(4) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ，Final AV=PK-12.11

(5) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(7) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(8) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna


80.0 dBuV/m
FCC_RF_1G-40G_(Peak)
FCC_RF_1G-40G_(AV)
40
1
2
0.0
1000.000 1400.00 1800.00 2200.00 2600.00 3000.00 3400.00 3800.00 4200.00 5000.00 MHz

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	24 ℃	Relative Humidity：	50 %
Pressure：	1010hPa	Test Power ：	DC 3.0V
Test Mode ：	TX CH 433.92 MHz		
About the duty cycle correction factor calculated, please refer to the page 17~18			

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
1301.72	H	43.72	31.61	-7.48	36.24	24.13	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

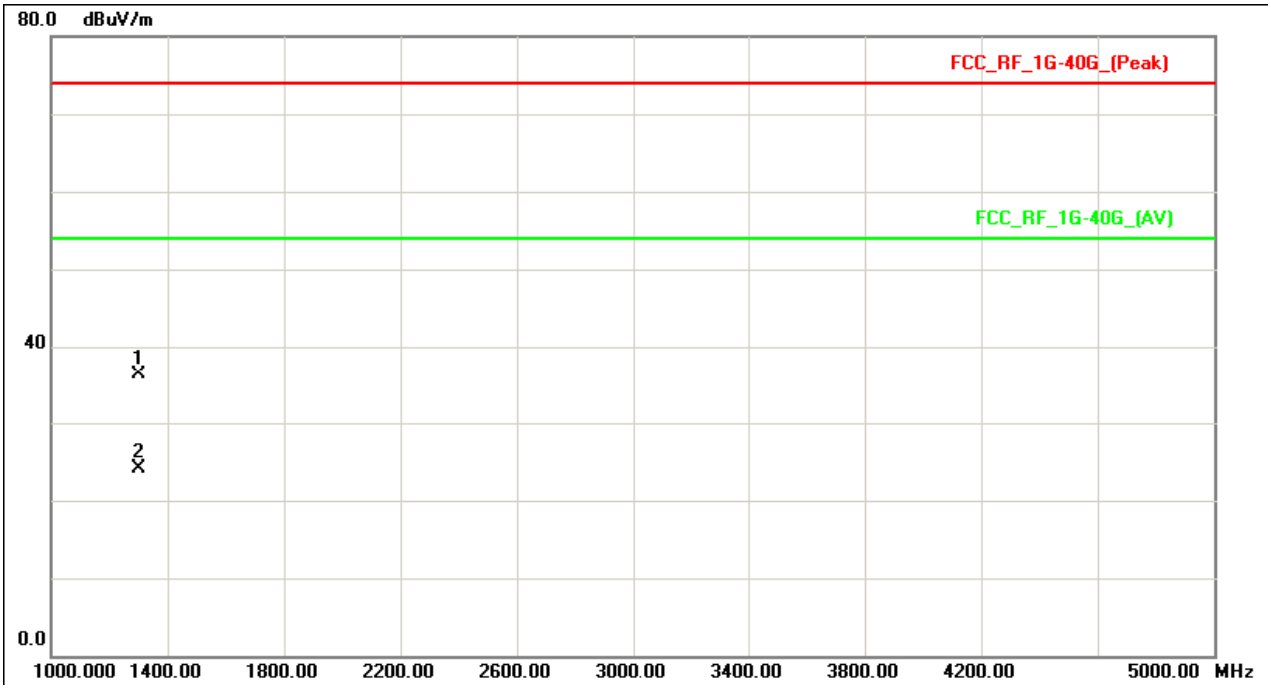
(4) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ，Final AV=PK-12.11

(5) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(7) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(8) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna


80.0 dBuV/m
FCC_RF_1G-40G_(Peak)
FCC_RF_1G-40G_(AV)
40
1
2
0.0
1000.000 1400.00 1800.00 2200.00 2600.00 3000.00 3400.00 3800.00 4200.00 5000.00 MHz

5. 20dB SPECTRUM BANDWIDTH MEASUREMENT

Limit

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calcuated in below table.

Fundamental Frequency	20dB Bandwidth Limits (MHz)
433.92 MHz	1.0848

5.1.MEASURING INSTRUMENTS AND SETTING

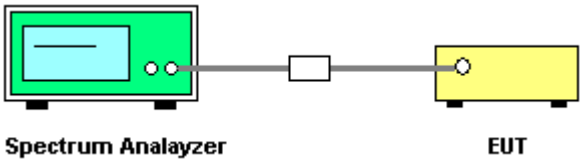
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.2.TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.

5.3. TEST SETUP LAYOUT



5.4. TEST DEVIATION

There is no deviation with the original standard.

5.5. EUT OPERATION DURING TEST

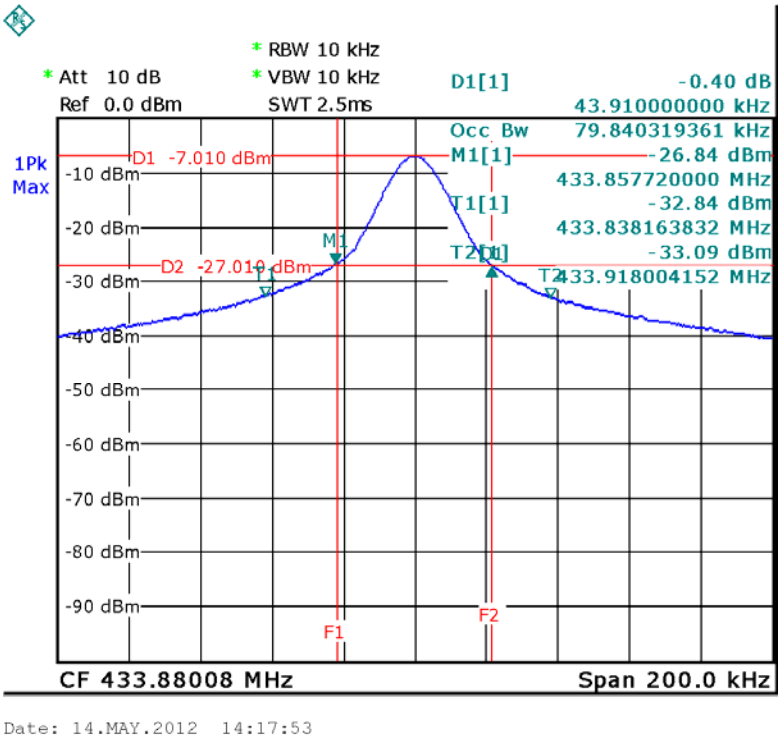
The EUT was programmed to be in continuously transmitting mode.

5.6. TEST RESULT

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	30℃	Relative Humidity：	63 %
Pressure：	1020 hPa	Test Power ：	DC 3.0V
Test Mode ：	TX CH 01		

Test Channel	Frequency (MHz)	20 dBc Bandwidth (KHz)	99% OBW (KHz)	Result
CH01	433.92	43.91	79.84	PASS

TX CH01



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6. TIMING TESTING

Limit

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

6.1.MEASURING INSTRUMENTS AND SETTING

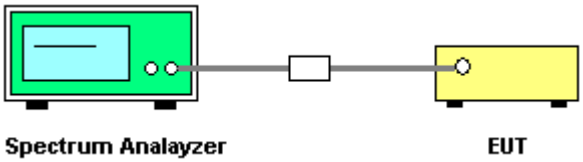
Please refer to section 6 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	Zero Span
RB	1MHz
VB	1MHz
Detector	Peak
Trace	Max Hold
Sweep Time	300 seconds

6.2.TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 1MHz and the video bandwidth of 1MHz were used.

6.3. TEST SETUP LAYOUT



6.4. TEST DEVIATION

There is no deviation with the original standard.

6.5. EUT OPERATION DURING TEST

The EUT was programmed to be in normal mode.

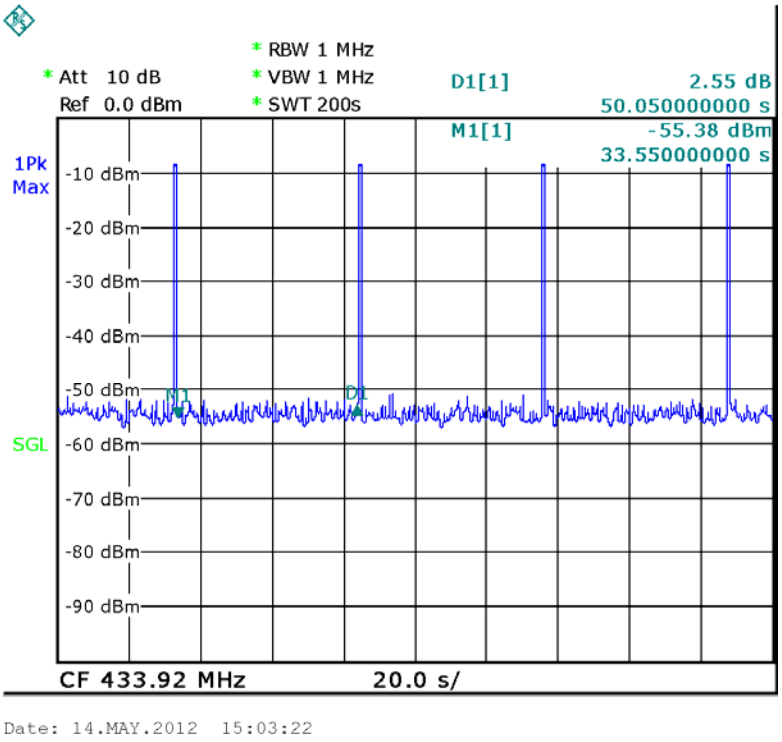
6.6. TEST RESULT

EUT：	Color Atomic Alarm Clock with 12 Hr. Forecast and Snooze Alarm	Model Name. ：	TX-14TH-LCD
Temperature：	30℃	Relative Humidity：	63 %
Pressure：	1020 hPa	Test Power ：	DC 3.0V
Test Mode ：	TX CH 01		

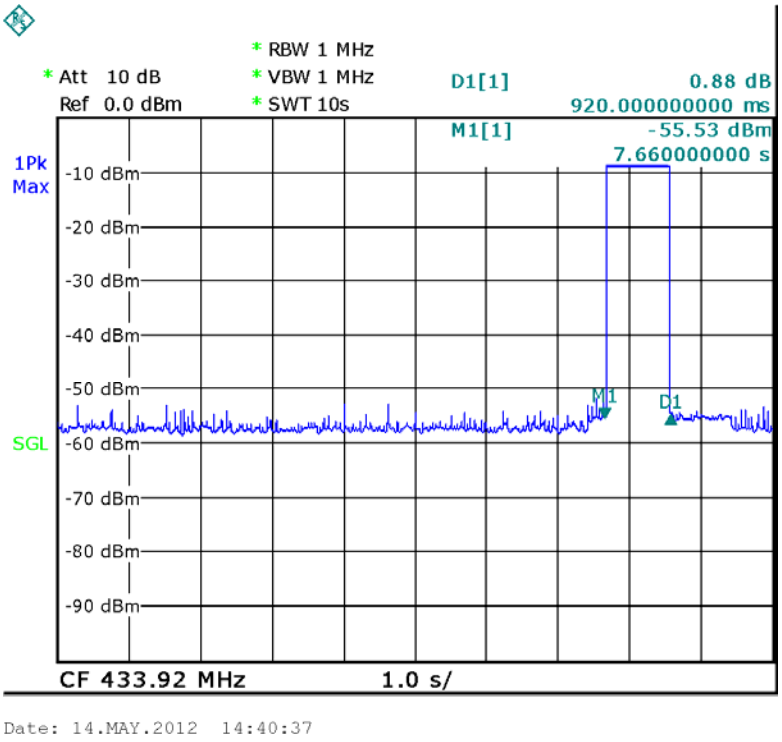
Test Channel	Frequency (MHz)	Silent period (seconds)	Silent period limit (seconds)	Result
CH01	433.92	50.05	＞10	PASS

Silent period = 50.05 s > 31 * 0.92 s = 28.52 s

Silent period＞10 seconds



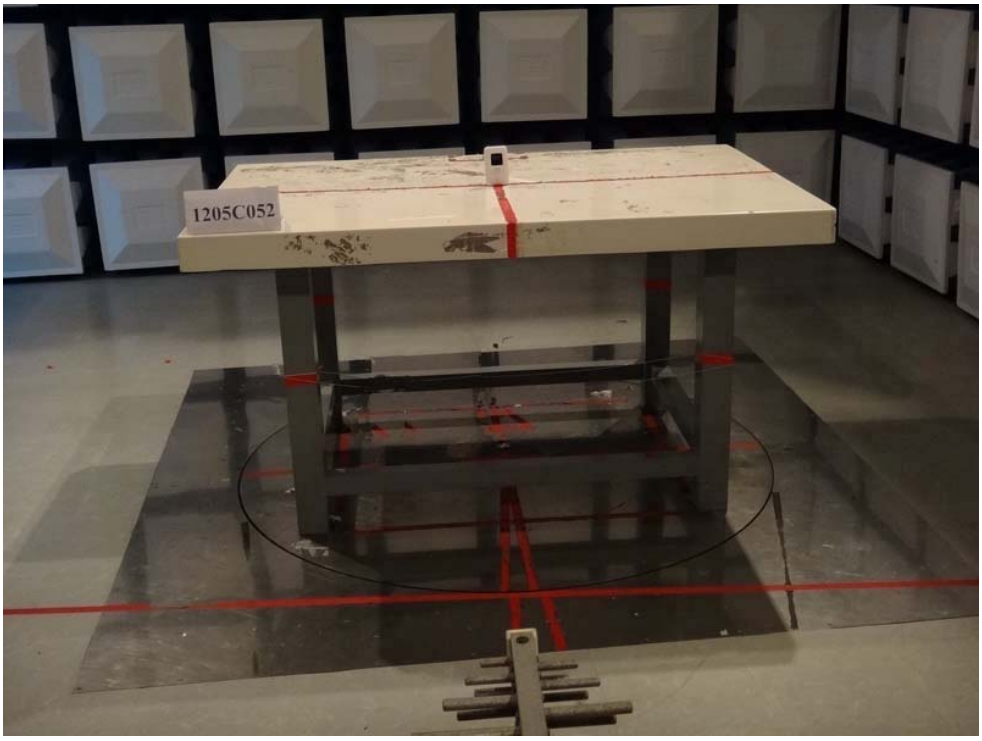
Silent period＞10 seconds

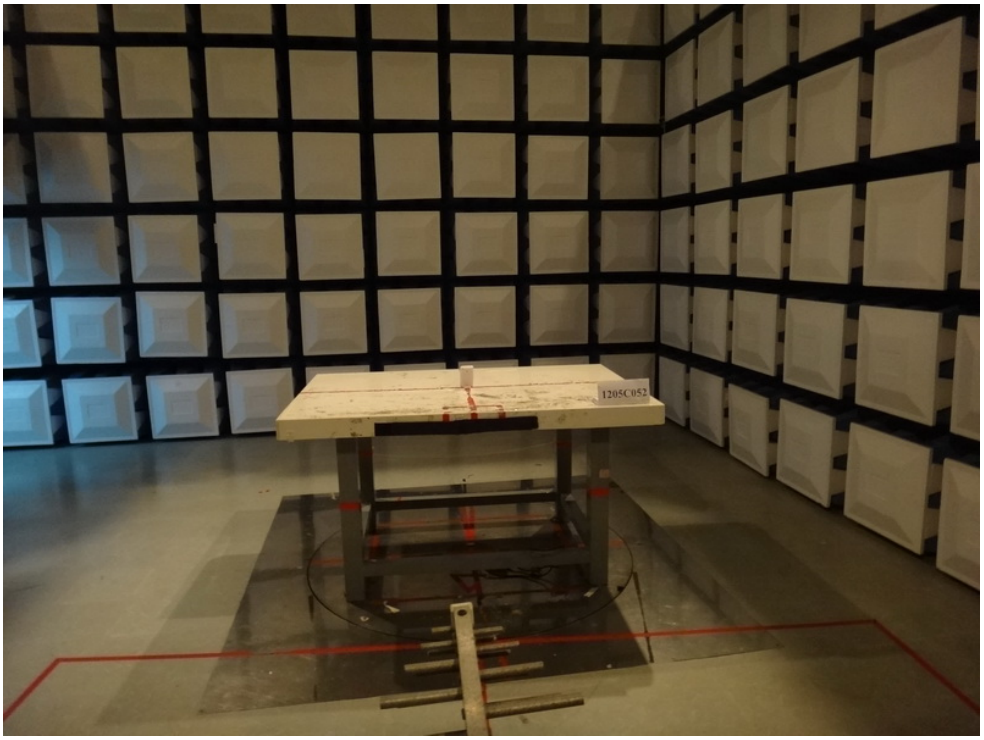


7. EUT TEST PHOTO

Radiated Measurement Photos
9KHz~30MHz

Radiated Measurement Photos
30MHz~1000MHz





Radiated Measurement Photos
Above 1G