EMC TEST REPORT

FCC ID: 2BGTY-SH-01M

Report No. : SSP24050308-1E

Applicant: Shenzhen Qing Lv Electronic Technology Co., Ltd

Product Name: Digital and pointer radio

Model Name : SH-01M

Test Standard : FCC Part 15 Subpart B

Date of Issue : 2024-06-07



Shenzhen CCUT Quality Technology Co., Ltd.

1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China; (Tel.:+86-755-23406590 website: www.ccuttest.com)

This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.

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Test Report Basic Information

Shenzhen Qing Lv Electronic Technology Co., Ltd Applicant....: 806, Building 2, Row 1, Jiangshi Road, Jiangwei Old Village, Jiangwei Address of Applicant..... Community, Matian Street, Guangming District, Shenzhen, China Shenzhen Qing Lv Electronic Technology Co., Ltd Manufacturer....: 806, Building 2, Row 1, Jiangshi Road, Jiangwei Old Village, Jiangwei Address of Manufacturer.....: Community, Matian Street, Guangming District, Shenzhen, China Product Name..... Digital and pointer radio Brand Name..... Main Model..... SH-01M Series Models....: See section 1.1 (Page 5) FCC Part 15 Subpart B Test Standard..... ANSI C63.4-2014 Test Result....: **PASS** Tested By: (Walker Wu) **APPROVE** (Lieber Ouyang) (Lahm Peng) Authorized Signatory.....

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Revision History

Revision	Issue Date	Description	Revised By
V1.0	2024-06-07	Initial Release	Lahm Peng

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1. General Information

1.1 Product Information

Product Name:	Digital and pointer radio
Trade Name:	-
Main Model:	SH-01M
Carriag Madala	SH-01, SH-02, SH-02M, QL-06, QL-08, QL-955, QL-618, QL-518, QL-09, QL-D01,
Series Models:	QL-D02, Ql-D03, QL-01, QL-02, QL-01M, QL-02M, QL-M02, SH-05
Class of Equipment:	☐ Class A ☐ Class B
Highest Internal Frequency:	<108MHz
Rated Voltage:	DC 3.7V by battery, USB 5V charging

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Note 1: The test data is gathered from a production sample, provided by the manufacturer.

Note 2: The color of appearance and model name of series models listed are different from the main model, but the circuit and the electronic construction are the same, declared by the manufacturer.

1.2 Test Setup Information

List of Test Mo	aes							
Test Mode	De	scription		Remark	C			
TM1	V	Vorking		FM Recei	ve			
TM2	V	Vorking		AM Recei	ve			
TM3	C	harging		AC 120/60)Hz			
List and Details of Auxiliary Cable								
Descrip	tion	Length (cm)		Shielded/Unshielded	With/Without Ferrite			
USB Ca	able	50		Unshielded	Without Ferrite			
-		-	-		-			
-		-		-	-			
List and Details	of Auxiliary	Equipment						
Descrip	tion	Manufacturer		Model	Serial Number			
Adapter Huawei		Huawei	HW-100225C00		HC78E2N6A23645			
		-		-				
-		-						
The equipment under test (EUT) was configured to measure its highest possible emission and immunity level.								

The test modes were adapted according to the operation manual for use.

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1.3 Compliance Standards

Compliance Standards					
ECC Don't 15 Cubmont D	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES,				
FCC Part 15 Subpart B	Unintentional Radiators				
All measurements contained in th	is report were conducted with all above standards				
According to standards for test	methodology				
ECC Doub 1 C. Cubrout D	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES,				
FCC Part 15 Subpart B	Unintentional Radiators				
ANCI C62 4 2014	American National Standard for Methods of Measurement of Radio-Noise Emissions				
ANSI C63.4-2014 from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.					
Maintenance of compliance is the responsibility of the manufacturer or applicant. Any modification of the product, which					
result is lowering the emission, should be checked to ensure compliance has been maintained.					

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1.4 Test Facilities

	Shenzhen CCUT Quality Technology Co., Ltd.
Laboratory Name:	1F, Building 35, Changxing Technology Industrial Park, Yutang Street,
	Guangming District, Shenzhen, Guangdong, China
CNAS Laboratory No.:	L18863
A2LA Certificate No.:	6893.01
FCC Registration No:	583813
ISED Registration No.:	CN0164
All magginement facilities u	and to collect the management data are located at 1E Duilding 2E Changeing

All measurement facilities used to collect the measurement data are located at 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China.

1.5 Measurement Uncertainty

Test Item	Conditions	Uncertainty
Conducted Disturbance	9kHz~30MHz	±1.64 dB
Radiated Disturbance	30MHz ∼ 1GHz	±3.32 dB
Radiated Disturbance	1GHz ∼ 18GHz	±3.50 dB

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Description	n Manufacturer Model Serial Numbe			Cal. Date	Due. Date				
Conducted Emissions									
AMN	ROHDE&SCHWARZ	ENV216	101097	2023-10-21	2024-10-20				
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100242	2023-07-31	2024-07-30				
EMI Test Software	FARA	EZ-EMC	EMEC-3A1+	N/A	N/A				
		Radiated Emission	ons						
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100154	2023-07-31	2024-07-30				
Spectrum Analyzer	KEYSIGHT	N9020A	MY48030972	2023-07-31	2024-07-30				
Amplifier	SCHWARZBECK	BBV 9743B	00251	2023-07-31	2024-07-30				
Amplifier	HUABO	YXL0518-2.5-45		2023-07-31	2024-07-30				
Loop Antenna	DAZE	ZN30900C	21104	2023-08-07	2024-08-06				
Broadband Antenna	SCHWARZBECK	VULB 9168	01320	2023-08-07	2024-08-06				
Horn Antenna	SCHWARZBECK	BBHA 9120D	02553	2023-08-07	2024-08-06				
EMI Test Software	FARA	EZ-EMC	FA-03A2 RE+	N/A	N/A				

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2. Summary of Test Results

FCC Rule	Description of Test Item	Result
FCC Part 15.107	Conducted Emissions	Passed
FCC Part 15.109	Radiated Emissions	Passed

Passed: The EUT complies with the essential requirements in the standard

Failed: The EUT does not comply with the essential requirements in the standard

N/A: Not applicable

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3. Conducted Emissions

3.1 Standard and Limit

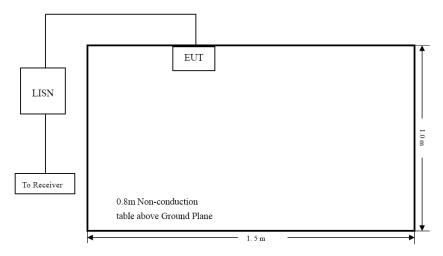
According to the rule FCC Part 15.107, Conducted limit, the limit for a class A and class B device as below:

Frequency of Emission	Class A	(dBuV)	Class B (dBuV)			
(MHz)	Quasi-peak	Average	Quasi-peak	Average		
0.15-0.5	79	66	66 to 56	56 to 46		
0.5-5	73	60	56	46		
5-30	73	60	60	50		

Note 1: Decreases with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz

3.2 Test Procedure

Test is conducting under the description of ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.



Test Setup Block Diagram

3.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.107 standard limit for a Class B device, and with the worst case as below:

Remark: Level = Reading + Factor, Margin = Level - Limit

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Note 2: The lower limit applies at the band edges

Test I	Plots and Data o	f Conducte	ed Emissic	ons							
Teste	d Model:	SH-0	SH-01M								
Teste	d Mode:	TM3									
	Voltage:		20V/60Hz	z							
	Power Line:	Neut									
		Neut	ıaı								
Rema	агк:										
90.0	dBuV										
80											
70											
60									FCC Part15 CE-Class B_QP		
00											
50									FCC Part15 CE-Class B_AVe		
40											
	l Na.d	*		5							
30		May Ward	man hay may may may may may may may may may m	MANA CALLERY	h.u.	7 X	9	<u> </u>	11		
20		4		14444 1444 M	ALMANDA PARAMETER	M					
			and the same of the same	mm 1	monte	Mary Mary		MW.V	//////////////////////////////////////		
10					- Sandra	water the	 *	1.1			
0							THE PARTY AND ADDRESS OF	~[4][AVG		
-10											
0.	150	0.5	00		(MHz)		5.0	00	30.000		
		D 1'	F 1	11	1 : :4						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark		
1	0.1995	29.05	9.58	38.63	63.63	-25.00	QP	Р			
2	0.1995	10.91	9.58	20.49	53.63	-33.14	AVG	Р			
3 *	* 0.3885	26.40	9.80	36.20	58.10	-21.90	QP	Р			
4	0.3885	9.27	9.80	19.07	48.10	-29.03	AVG	Р			
5	1.1490	20.61	9.92	30.53	56.00	-25.47	QP	Р			
6	i i			1060	46.00	-27.40	AVG	P			
II -	1.1490	8.68	9.92	18.60				_			
7	2.7600	17.83	10.08	27.91	56.00	-28.09	QP	Р			
8	2.7600 2.7600	17.83 1.41	10.08 10.08	27.91 11.49	56.00 46.00	-28.09 -34.51	QP AVG	Р			
8	2.7600 2.7600 4.4610	17.83 1.41 16.84	10.08 10.08 10.19	27.91 11.49 27.03	56.00 46.00 56.00	-28.09 -34.51 -28.97	QP AVG QP	P P			
8	2.7600 2.7600	17.83 1.41	10.08 10.08	27.91 11.49	56.00 46.00	-28.09 -34.51	QP AVG	Р			

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Test F	Plots and Data o	of Conducte	ed Emissic	ons							
Teste	d Model:	SH-0	H-01M								
Teste	d Mode:	TM3									
Test V	oltage:	AC 1	20V/60Hz	Z							
Test F	ower Line:	Live									
Rema	rk:										
90.0	dBuV	·									
80											
70											
60									FCC Part15 CE-Class B_QP		
									FCC Part15 CE-Class B_AVe		
50									PUC FAILTS CE-Class B_AVE		
40	1	3							11 X		
30	$\mathcal{N}_{\mathcal{M}}$	MIL		5 X.		Z			9 1 1 1 1 1 1 1 1 1		
		רייליין א	2/40/4/40/40/40/	Herakin manularin val	wholeward	ÎΙ		Ш	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		
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10					The state of the s		1 1		peak		
0						\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	who observed has been		AVG		
-10											
0.	150	0.5	00		(MHz)		5.0	00	30.000		
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark		
1	0.2220	30.73	9.20	39.93	62.74	-22.81	QP	Р			
2	0.2220	10.89	9.20	20.09	52.74	-32.65	AVG	Р			
3 *		28.03	9.94	37.97	56.52	-18.55	QP	Р			
5	0.4695 1.1985	13.17 21.10	9.94	23.11 31.12	46.52 56.00	-23.41 -24.88	AVG QP	P			
6	1.1985	9.58	10.02	19.60	46.00	-24.88	AVG	P			
7	2.5125	18.79	10.02	28.87	56.00	-27.13	QP	P			
8	2.5125	1.64	10.08	11.72	46.00	-34.28	AVG	Р			
9	8.4795	20.27	10.16	30.43	60.00	-29.57	QP	Р			
10	8.4795	-0.72	10.16	9.44	50.00	-40.56	AVG	Р			
11	14.8740	30.43	10.23	40.66	60.00	-19.34	QP	Р			
12	14.8740	8.52	10.23	18.75	50.00	-31.25	AVG	Р			

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4. Radiated Disturbance

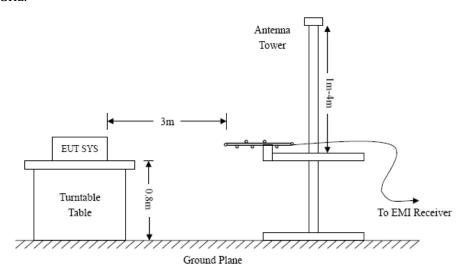
4.1 Standard and Limit

According to the rule FCC Part 15.109, Radiated emission limit for a class A and class B device as below:

Eraguangy of Emiggian (MHg)	Class A (3m)	Class B (3m)							
Frequency of Emission (MHz)	Quasi-peak (dBuV/m)	Quasi-peak (dBuV/m)							
30-88	50	40							
88-216	54.0	43.5							
216-960	57.0	46							
Above 960	60	54							
Note: The more stringent limit applies at transition frequencies.									

4.2 Test Procedure

Test is conducting under the description of ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.



Test Setup Block Diagram

4.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.109 standard limit for a Class B device, and with the worst case as below:

Remark: Level = Reading + Factor, Margin = Level - Limit

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Гest F	lots and l	Data o	f Radiated	l Emissio	ns									
Teste(d Model:			SH-01M										
Teste(d Mode:			TM1										
Гest V	oltage:			DC 3.7V										
Гest <i>F</i>	Antenna F	Polariz	ation:	Horizontal										
Rema	rk:													
80.0	dBuV/m													
70														
60														
								FC	C Part15 R	E-Class B_	30-10	00MHz		
50								Ma	rgin -6 dB					
40							┿							
40														
30					ongs seemelydish dibblished							6		
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0.0														
	.000		60.00			(MHz)		300).00			1000.000		
			Deading	Factor	Laval	l innit	Marain		11-1-14	A!				
No.	Freque (MH		Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark		
1	59.02		27.20	-9.74	17.46	40.00	-22.54	QP	100	223	Р			
2	75.7		28.31	-12.29	16.02	40.00	-23.98	QP	200	11	Р			
3	141.3		25.63	-9.21	16.42	43.50	-27.08	QP	200	11	Р			
4	160.3		26.49	-8.99	17.50	43.50	-26.00	QP	100	348	Р			
5	350.4		26.79	-7.51	19.28	46.00	-26.72	QP	100	88	Р			
6 *	787.8	513	27.54	1.97	29.51	46.00	-16.49	QP	200	126	Р			

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Test 1	Plots	and	Data o	f Rad	iated	l Emi	ssion	18									
Tested Model:							SH-01M										
Tested Mode:						TM1											
Test Voltage:							DC 3.7V										
Test .	Ante	nna l	Polariz	zation	ı: Vertical												
Remark:																	
80.0) d	BuV/n	1														
70																	
60																	
50	1											C Part15 R r gin -6 dB	E-Class B_	lass B_30-1000MHz			
							+										
40							_						2		5 6 X		
30							_					2	3 4 X				
20										1			James Mark	physical section	Jan Jardan Miraghan		
20	met disse	NAMAN/A	Mentanyaway	halah musulaga	Maria	NUI		Remove for well by the Manager	haphanony	X Verent	e/est-capeler-	Marian Prop					
10					1 1-1114	A-west	provident (September 1998)	Manager 19	44, ر	W-Valence							
0.0																	
3	0.000	l		6	0.00				(MHz)		300	0.00			1000.0	100	
No	. 1	Frequ (MF		Read (dBt			ctor /m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark		
1	+	238.3	3102	27.	97	-10	.03	17.94	46.00	-28.06	QP	100	294	Р			
2	\top	337.2	2155	36.	25	-7.	82	28.43	46.00	-17.57	QP	100	250	Р		_	
3		443.2	2943	38.	52	-5.	12	33.40	46.00	-12.60	QP	100	294	Р			
4		490.7		35.		-3.	86	31.93	46.00	-14.07	QP	100	294	Р			
5	_	694.4	174	34.		0.4		34.73	46.00	-11.27	QP	100	283	Р			
6	*	851.0	353	33.	83	1.	85	35.68	46.00	-10.32	QP	100	294	Р			

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Гest Р	lots and	Data o	of Radia	ted l	Emissi	ons										
Гestec	d Model:			S	SH-01M											
Гestec	d Mode:			Т	TM2											
Test Voltage: DC 3.7V																
est A	ntenna	Polariz	olarization: Horizontal													
Remai	rk:															
80.0	dBuV/r	n												_		
70																
60									FC	C Part15 F	RE-Class B_	30-10	INNMH2			
50										rgin -6 dB	IL Cluss b_	_30 10	SOUTE	f		
40								T -						Ц		
30											5	· Lindon March	and the state of t	الماس		
20	offic haddened in	Halfragon and prayer	2 May Marky	altifolicy	Lulu .	Market Commence	M. Andrews Market Marke		further with	AND SHANNING	has been part of the second of	harr.				
10						March Co.		Mr.						+		
0.0																
30.	.000		60.	00			(MHz)		300).00			100	00.000		
No.	Frequ (Mh		Readir (dBu\		Factor (dB/m)		Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark			
1	38.3	462	26.81	1	-8.21	18.60	40.00	-21.40	QP	199	109	Р				
2	50.0		27.35		-8.70	18.65	40.00	-21.35	QP	100	270	Р				
3	162.0		26.61	\rightarrow	-9.10	17.51	43.50	-25.99	QP	100	12	Р				
4	340.7		26.79		-7.73	19.06	46.00	-26.94	QP	199	234	Р				
5	535.7		26.34	_	-3.06	23.28	46.00	-22.72	QP	199	348	Р				
6 *	675.2	2080	26.58	3	0.07	26.65	46.00	-19.35	QP	100	280	P				

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Гest I	Plots and	l Data c	of Radiated	l Emissior	ıs									
Tested Model: SH-01M														
Гeste	d Mode:			TM2										
Гest \	Voltage:			DC 3.7V										
Гest <i>I</i>	Antenna	Polariz	zation:	: Vertical										
Rema	ırk:													
80.0	dBuV/	'm												
70														
60								FCI	C Part15 R	F-Class R	30-10	NOMH2		
50									rgin -6 dB		5_55 15555112			
										5 X				
40										X	Ş			
30										4 *				
30									3 X		J.	Hermondone when the mander		
20		1 What Marie				2		السيا	de Alexander	CAN DIVINED AND VALUE				
	ሌሌላ\ ^ֈ	AND MANAGEMENT	wheether well well will are	and have been producted	are adaptator adressed to	Mary Mary	Andrew Superior	A PANCAGA TO						
10														
0.0 30).000		60.00			(MHz)		200	0.00			1000.000		
			00.00			()		300				1000.000		
No.		uency lHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark		
1		7433	27.54	-9.24	18.30	40.00	-21.70	QP	100	271	Р			
2		.4410	26.70	-8.75	17.95	43.50	-25.55	QP	100	178	Р			
3		.0302	31.90	-5.88	26.02	46.00	-19.98	QP	100	356	Р			
4		.2156	35.43	-4.23	31.20	46.00	-14.80	QP	199	226	Р			
5 *		.2480	44.44	-3.27	41.17	46.00	-4.83	QP	199	226	Р			
6	633	.9073	38.29	-0.68	37.61	46.00	-8.39	QP	199	247	Р			

Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report.

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