# **Radio Test Report**

Report No.: CTA231109003W02

Issued for

Shenzhen Yize Innovation Technology Co., Ltd.

201, 2nd Floor, Building 3, Yunli Smart Park, Bantian Street, Longgang District, Shenzhen, CN

Product Name: 3-in-1 charging station

Brand Name: N/A

Model Name: E8-S1C

Series Model(s): N/A

FCC ID: 2BA6N-E8-S1C

Test Standards: FCC Part 15 Subpart C

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Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

#### Page 2 of 24

Report No.: CTA231109003W02

#### **TEST REPORT**

Applicant's Name:	Shenzhen Yize Innovation Technology Co., Ltd.
Address	201, 2nd Floor, Building 3, Yunli Smart Park, Bantian Street, Longgang District, Shenzhen, CN
Manufacturer's Name:	Shenzhen Yuanwangxing Technology Co., LTD.
Address	Second floor, No. 7, Honghua Lane, Chihua Ling, Guihua Community, Guanlan Street, Longhua District, Shenzhen, China
Product Description	
Product Name:	3-in-1 charging station

В	rand:	N/A	
N	lodel Number	E8-S1C	
S	eries Model(s)	N/A	
Т	est Standards	FCC Part 15 Subpart C	
Т	est Procedure	ANSI C63.10-2013	

This device described above has been tested by CTA, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....

Date of receipt of test item ......: 24 Oct. 2023

Date (s) of performance of tests : 24 Oct. 2023 ~ 15 Nov. 2023

Date of Issue .....: 15 Nov. 2023

Test Result ..... Pass

Testing Engineer

CTATESTING

(Zoey Cao)

Technical Manager :

Won

Authorized Signatory :

(Amy Wen)

(Eric Wang)

Table of Contents	Page
1. SUMMARY OF TEST RESULTS	5
1.1 TEST FACTORY	5
1.2 MEASUREMENT UNCERTAINTY	5
2. GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF THE EUT	6
2.2 DESCRIPTION OF THE TEST MODES	7
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS	10
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	11
3. CONDUCTED EMISSION TEST RESULT (SECTION 15.207)	13
3.1 POWER LINE CONDUCTED EMISSION LIMITS	13
3.2 TEST PROCEDURE	14
3.3 TEST SETUP	14
3.4 EUT OPERATING CONDITIONS	14
3.5 TEST RESULTS	15
4. RADIATED& FIELD EMISSION TEST RESULT (SECTIOU 15.209)	17
4.1 LIMIT	17
4.2 TEST PROCEDURE	17
4.3 TEST SETUP	18
4.4 TEST RESULTS	19
5. 20 DB BANDWIDTH TEST	22
5.1 LIMIT	22
5.2 TEST SETUP	22
5.3 TEST RESULTS	22
APPENDIX-PHOTOS OF TEST SETUP	24

#### Page 4 of 24

# CTATES !! Report No.: CTA231109003W02

# **Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	15 Nov. 2023	CTA231109003W02	ALL	Initial Issue
		C	-	ATES

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# 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

	Standard Section	Test Item	Judgment	Remark
	15.207	Conducted Emission	PASS	
	15.209(a)	Radiated emission, Spurious Emission	PASS	(
SI	2.1049	20 dB Bandwidth	PASS	

**1.1 TEST FACTORY** 

Shenzhen CTA Testing Technology Co., Ltd. CTA TESTING Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China FCC test Firm Registration Number: 517856 IC test Firm Registration Number: 27890 A2LA Certificate No.: 6534.01 IC CAB ID: CN0127

#### **1.2 MEASUREMENT UNCERTAINTY**

The reported uncertainty of measurement  $\mathbf{y} \pm \mathbf{U}$ , where expended uncertainty  $\mathbf{U}$  is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test	Range	Measurement Uncertainty	
Radiated Emission	30~1000MHz	4.06 dB	
Radiated Emission	1~18GHz	5.14 dB	
Radiated Emission	18-40GHz	5.38 dB	
Conducted Disturbance	0.15~30MHz	2.14 dB	
Output Peak power	30MHz~18GHz	0.55 dB	
Power spectral density	/	0.57 dB	
Spectrum bandwidth	1	1.1%	
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.10 dB	
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.32 dB	
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.54 dB	
ESTING CTATE	STING	TING	

# 2. GENERAL INFORMATION

#### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	3-in-1 charging station	
Brand	N/A	
Model Number	E8-S1C	
Series Model(s)	N/A	CCTP
Model Difference	N/A	S
Channel List	Please refer to the Note 2.	
Antenna Type	Please refer to the Note 3.	
Equipemnt Category	Non-ISM frequency	
Operating frequency	Watch: 110.5-205KHz Phone: 110.5-205KHz	STING
Modulation Type	PFM	
Rating:	Input: 9V 2A DC Output: Output 1 for iPhone: 5W/7.5W/10W Output 2 for Watch: 2.5W Output 3 for earphone: 5V 0.6A 3W	
Adapter	Input: 100-240V~50/60Hz 0.8A MAX Output: 9V 2A	
Hardware version number	N/A	
Software version number	N/A	
Connecting I/O Port(s)	Please refer to the Note 1.	-TP

# Note: CTATES

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

2.

Test channel list					
Coil	Frequency(KHz)				
1.00	126.7				
2	128.1				

	Cc 1	Tes bil	st char Fr	nnel list equency(KHz) 126.7 128.1	TE		
3.	Table fo	or Filed	Anteni	na	Con Cit		TESTING
	Ant.	Bra	and	Model Name	Antenna Type	Connector	NOTE
	1	N	/A	E8-S1C	Coil 1	N/A	Antenna 1
	2	N	/A	6242-7.1UH	Coil 2	N/A	Antenna 2
	(P.)-			GOTAT	ESTING	C CTATES	STING

#### Page 7 of 24

#### 2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base 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	iPhone charging+Watch charging+earphone charging
Mode 2	iPhone charging+Watch charging
Mode 3	Watch charging+earphone charging
Mode 4	iPhone charging+ earphone charging
Mode 5	iPhone charging only
Mode 6	Watch charging only
	1.200

	For Conducted Emission
Final Test Mode	Description
Mode 1	iPhone charging(5W)+Watch charging+earphone charging
Mode 2	iPhone charging(7.5W)+Watch charging+earphone charging
Mode 3	iPhone charging(10W)+Watch charging+earphone charging
Mode 4	iPhone charging(5W)+Watch charging
Mode 5	iPhone charging(7.5W)+Watch charging
Mode 6	iPhone charging(10W)+Watch charging
Mode 7	Watch charging+earphone charging
Mode 8	iPhone charging(10W)+ earphone charging
Mode 9	iPhone charging(7.5W)+ earphone charging
Mode 10	iPhone charging(5W)+ earphone charging
Mode 11	iPhone charging(10W) only
Mode 12	iPhone charging(7.5W) only
Mode 13	iPhone charging(5W) only
Mode 14	Watch charging only
	CTATESTING

#### Page 8 of 24

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	For Radiated Emission				
Final Test Mode	Description				
Mode 1	iPhone charging(5W)+Watch charging+earphone charging				
Mode 2	iPhone charging(7.5W)+Watch charging+earphone charging				
Mode 3	iPhone charging(10W)+Watch charging+earphone charging				
Mode 4	iPhone charging(5W)+Watch charging				
Mode 5	iPhone charging(7.5W)+Watch charging				
Mode 6	iPhone charging(10W)+Watch charging				
Mode 7	Watch charging+earphone charging				
Mode 8	iPhone charging(10W)+ earphone charging				
Mode 9	iPhone charging(7.5W)+ earphone charging				
Mode 10	iPhone charging(5W)+ earphone charging				
Mode 11	iPhone charging(10W) only				
Mode 12	iPhone charging(7.5W) only				
Mode 13	iPhone charging(5W) only				
Mode 14	Watch charging only				
	Geon				

#### Page 9 of 24

#### Report No.: CTA231109003W02

#### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters



#### Page 10 of 24

#### 2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND 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. Nocossan/ accessories

		INE	ecessary accessories		G
Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
	Adapter	N/A	HH0024Z-090200-AG	N/A	N/A
	DC Cable	N/A	N/A	100cm	NO
-10	6 Iphone	Iphone	MPVG3CH/A	N/A	N/A
97.7	Watch	Samsung	Active2(E060)	N/A	N/A
	Headphone charging box	Samsung	SM-R180	N/A	N/A
	0		Support units	JUG	

ltem	Equipment	Mfr/Brand	Model/Type No.	Length	Note
	- quipinoin	init/Dialia		2011911	
			1200		4831
				C Cl	C
				C.	
	STING				
Note	ATA		TESTING		

(1) For detachable type I/O cable should be specified the length in cm in Length column.

(2) "YES" is means "with core"; "NO" is means "without core".

# Page 11 of 24

# Report No.: CTA231109003W02

# 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS Radiation Test equipment

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	CTA-308	2023/08/02	2024/08/01
LISN	R&S	ENV216	CTA-314	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESPI	CTA-307	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESCI	CTA-306	2023/08/02	2024/08/01
Spectrum Analyzer	Agilent	N9020A	CTA-301	2023/08/02	2024/08/01
Spectrum Analyzer	R&S	FSP	CTA-337	2023/08/02	2024/08/01
Vector Signal generator	Agilent	N5182A	CTA-305	2023/08/02	2024/08/01
Analog Signal Generator	R&S	SML03	CTA-304	2023/08/02	2024/08/01
WIDEBAND RADIO COMMUNICATIO N TESTER	CMW500	R&S	CTA-302	2023/08/02	2024/08/01
Temperature and humidity meter	Chigo	ZG-7020	CTA-326	2023/08/02	2024/08/01
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	CTA-310	2023/10/17	2024/10/16
Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2023/10/13	2024/10/12
Loop Antenna	Zhinan	ZN30900C	CTA-311	2023/10/17	2024/10/16
Horn Antenna	Beijing Hangwei Dayang	OBH100400	CTA-336	2021/08/07	2024/08/06
Amplifier	Schwarzbeck	BBV 9745	CTA-312	2023/08/02	2024/08/01
Amplifier	Taiwan chengyi	EMC051845B	CTA-313	2023/08/02	2024/08/01
Directional coupler	NARDA	4226-10	CTA-303	2023/08/02	2024/08/01
High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2023/08/02	2024/08/01
High-Pass Filter	SingBo	XBLBQ-GTA27	CTA-403	2023/08/02	2024/08/01
Automated filter bank	Tonscend	JS0806-F	CTA-404	2023/08/02	2024/08/01
Power Sensor	Agilent	U2021XA	CTA-405	2023/08/02	2024/08/01
Amplifier	Schwarzbeck	BBV9719	CTA-406	2023/08/02	2024/08/01

10

65

Page 12 of 24

Report No.: CTA231109003W02

	Test Equipment	Manufacturer	Model No.	Version number	Calibration Date	Calibration Due Date	
	EMI Test Software	Tonscend	TS®JS32-RE	5.0.0.2	N/A	N/A	
	EMI Test Software	Tonscend	TS®JS32-CE	5.0.0.1	N/A	N/A	
	RF Test Software	Tonscend	TS®JS1120-3	3.1.65	N/A	N/A	
	RF Test Software	Tonscend	TS®JS1120	3.1.46	N/A	N/A	Ç/m
CTAT	ESTI	CTATESTIN	3	TESTING			

# 3. CONDUCTED EMISSION TEST RESULT (SECTION 15.207)

#### **3.1 POWER LINE CONDUCTED EMISSION LIMITS**

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

	Class B (dBuV)				
	Quasi-peak	Average			
0.15 -0.5	66 - 56 *	56 - 46 *			
0.50 -5.0	56.00	46.00			
5.0 -30.0	60.00	50.00			

CTATESTING 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. TESTING

#### The following table is the setting of the receiver

Receiver Parame	eters	Setting			
Attenuation		10 dB			
Start Frequence	су	0.15 MHz			
Stop Frequence	у	30 MHz			
IF Bandwidth	1	9 kHz			
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#### Page 14 of 24

#### **3.2 TEST PROCEDURE**

- a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 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 is at least 80 cm from the nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.
- 3.3 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 cm from other units and other metal planes support units.

#### 3.4 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.

#### Page 15 of 24

#### Report No.: CTA231109003W02



- 3). QPMargin(dB) = QP Limit (dB $\mu$ V) QP Value (dB $\mu$ V)
- 4). AVMargin(dB) = AV Limit (dB $\mu$ V) AV Value (dB $\mu$ V)
- 5). All modes have been tested, only show the worst case.

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Page 16 of 24

Report No.: CTA231109003W02



Final	l Data Lis	st									
NO.	Freq. [MHz]	Factor [dB]	QP Reading[ <u>dB</u> yV]	QP Value [dBµV]	QP Limit [dBµM]	QP Margin [dB]	AV Reading [dBµM]	AV Value [dBµM]	AV Limit [dBµV]	AV Margin (dB)	Verdict
1	0.1725	10.50	41.72	52.22	64.84	12.62	32.30	42.80	54.84	12.04	PASS
2	0.5955	10.50	38.63	49.13	56.00	6.87	26.66	37.16	46.00	8.84	PASS
3	1.167	10.50	33.18	43.68	56.00	12.32	18.12	28.62	46.00	17.38	PASS
4	1.716	10.50	33.19	43.69	56.00	12.31	15.44	25.94	46.00	20.06	PASS
5	4.02	10.50	19.96	30.46	56.00	25.54	2.93	13.43	46.00	32.57	PASS
6	11.5935	10.50	28.70	39.20	60.00	20.80	17.18	27.68	50.00	22.32	PASS

Note:1).QP Value (dBµV)= QP Reading (dBµV)+ Factor (dB)

- 2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)
- 3). QPMargin(dB) = QP Limit (dB $\mu$ V) QP Value (dB $\mu$ V)
- 4). AVMargin(dB) = AV Limit (dB $\mu$ V) AV Value (dB $\mu$ V)
- 5). All modes have been tested, only show the worst case.

#### Page 17 of 24

#### RADIATED& FIELD EMISSION TEST RESULT (SECTIOU 15.209)

4.1 LIMIT

A CV	Frequency [MHz]	Field Strength [uV/m]	Measurement Distance [Meters]
	0.009 ~ 0.490	2400/F (kHz)	300
	0.490 ~ 1.705	24000/F (kHz)	30
	1.705 ~ 30	30	30
	30 ~ 88	100	3
	88 ~ 216	150	3
200	216 ~ 960	200	3
NO	Above 960	500	3

#### Note:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

(3) Emission level (dBuV/m)=20log	Emission level (uV/m).
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

§ 15.209(d)The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

#### **4.2 TEST PROCEDURE**

- a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. 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.
- d. 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.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos. Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

#### Page 18 of 24

# 4.3 TEST SETUP





(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



#### Page 19 of 24

#### Report No.: CTA231109003W02

#### 4.4 TEST RESULTS

Temperature :	<b>23.1</b> ℃	Relative Humidity :	60%
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 1

#### 9KHz-150KHz

	1001 1	onago .						
	4.4.1	Spurious Rad						
				9KHz-	-150KHz	Good	(m	
	No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
TE	1	0.0170	6.17	19.88	26.05	123.00	-96.95	AVG
CTA '	2	0.0331	6.29	19.84	26.13	117.21	-91.08	AVG
ê.	3	0.0518	13.61	19.45	33.06	113.32	-80.26	AVG
	4	0.1260	42.78	17.54	60.32	105.6	-45.28	peak Fundamental
2	5	0.1280	43.39	17.54	60.93	105.46	-44.53	peak Fundamental
10	6	0.1444	19.73	17.51	37.24	104.41	-67.17	AVG

#### 150KHz-30MHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.2396	18.75	19.83	38.58	100.01	-61.43	AVG
2	0.5081	12.18	20.20	32.38	73.48	-41.10	QP
3	2.0007	14.07	20.40	34.47	69.50	-35.03	QP
4	3.1350	10.98	20.14	31.12	69.50	-38.38	QP
5	7.9706	8.36	20.32	28.68	69.50	-40.82	QP
6	19.9404	6.41	22.49	28.90	69.50	-40.60	QP

#### Page 20 of 24

#### Report No.: CTA231109003W02



#### 4.4.2 Spurious Radiated Emission below 1 GHz

NO. Freq. [MHz]	Reading	Level	Factor	Limit	Margin	Height	Angle	Delecito	
	[MHz]	[dBµV]	[dBµV/m]	[dB/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity
1	75.8325	44.66	23.52	-21.14	40.00	16.48	100	20	Horizontal
2	104.326	38.50	19.93	-18.57	43.50	23.57	100	225	Horizontal
3	150.643	45.88	24.13	-21.75	43.50	19.37	100	285	Horizontal
4	241.096	42.16	23.92	-18.24	46.00	22.08	100	156	Horizontal
5	297.235	33.76	16.37	-17.39	46.00	29.63	100	114	Horizontal
6	687.538	36.20	24.46	-11.74	46.00	21.54	100	216	Horizontal

CTA TESTIN Note:1).Level (dBµV/m)= Reading (dBµV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

- 3). Margin(dB) = Limit (dB $\mu$ V/m) Level (dB $\mu$ V/m)
- 4). All modes have been tested, only show the worst case. CTA CTA

#### Page 21 of 24

#### Report No.: CTA231109003W02



NO. Freq. Reading Level Factor Limit Margin Height   [MHz] [dBμV] [dBμV/m] [dB/m] [dBμV/m] [dBμV/m] [dB] [cm]   1 33.2738 44.46 26.30 -18.16 40.00 13.70 100   2 49.7638 41.23 25.15 -16.08 40.00 14.85 100   3 68.6787 50.05 29.52 -20.53 40.00 10.48 100	Angle [°] 349 264 255	Polarity Vertical Vertical
IMB [MHz] [dBμV] [dBμV/m] [dB/m] [dBμV/m] [dB] [cm]   1 33.2738 44.46 26.30 -18.16 40.00 13.70 100   2 49.7638 41.23 25.15 -16.08 40.00 14.85 100   3 68.6787 50.05 29.52 -20.53 40.00 10.48 100	[°] 349 264 255	Vertical Vertical
1 33.2738 44.46 26.30 -18.16 40.00 13.70 100   2 49.7638 41.23 25.15 -16.08 40.00 14.85 100   3 68.6787 50.05 29.52 -20.53 40.00 10.48 100	349 264 255	Vertical Vertical
2 49.7638 41.23 25.15 -16.08 40.00 14.85 100   3 68.6787 50.05 29.52 -20.53 40.00 10.48 100	264 255	Vertical
<u>3 68.6787 50.05 29.52 -20.53 40.00 10.48 100</u>	255	Ventional
		vertical
<u>4 105.417 41.25 22.63 -18.62 43.50 20.87 100</u>	357	Vertical
5 148.946 51.55 29.79 -21.76 43.50 13.71 100	264	Vertical
6 531.126 36.65 22.83 -13.82 46.00 23.17 100	161	Vertical
1) Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)		

Note:1).Level (dBµV/m)= Reading (dBµV)+ Factor (dB/m) CTATES

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dB $\mu$ V/m) - Level (dB $\mu$ V/m)

CTA TESTING 4). All modes have been tested, only show the worst case.

#### 5. 20 DB BANDWIDTH TEST

- 5.1 Limit
  - FCC Part 2.1049, Only applicable to report.

#### 5.2 TEST SETUP

5.2 TEST SETUP	
Spectrum Parameter	Setting
Span Frequency	approximately 2 to 3 times the 20 dB bandwidth
RB	greater than 1 % of the 20 dB bandwidth,
VB	equal to the RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

CTA TESTING The test program and configuration, Refer to 4.2 and 4.3

#### 5.3 TEST RESULTS

OperatingFrequency (kHz)	
--------------------------	--

126.7

20 dB Bandwhidth (Kz)

4.522

TESTING

Coil 1



#### Page 23 of 24

#### Report No.: CTA231109003W02



Report No.: CTA231109003W02

# **APPENDIX-PHOTOS OF TEST SETUP**

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

\*\* \*\* \*\* \*\* END OF THE REPORT \*\* \*\* \*\* \*\*