

# Shenzhen CTA Testing Technology Co., Ltd.

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

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Testing Laboratory Name:	Shenzhen CTA Testing Technology Co., Ltd.
Address	Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Commu Fuhai Street, Baoʻan District, Shenzhen, China
Applicant's name	Shenzhen Chuangyixin Technology co.,LTD
Address	Room 403,4th Floor,97 Zhenhua Road,Futian District Shenzhen China
Test specification	
Standard:	FCC Rules and Regulations Part 15 Subpart C (Section 15.2 ANSI C63.10: 2013
Standard Shenzhen CTA Testing Technology	ANSI C63.10: 2013
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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 Tel:+86-755 2322 5875 E-mail:cta@cta-test.cn Web:http://www.cta-test.cn

TEST REPORT Equipment under Test wireless charger • S20 Model /Type C18, C100, C300, Q20, Q12, Q500, F20, X455, Z8A, Z10, Z5, Listed Models ÷ Z5A ,T268, S36, S33,S35 ,H18, H6, 970, H30, V5 PCB board, structure and internal of these model(s) are the same, Model Declaration So no additional models were tested. Applicant Shenzhen Chuangyixin Technology co.,LTD Room 403,4th Floor,97 Zhenhua Road,Futian District Shenzhen Address 1 China Manufacturer Shenzhen Chuangyixin Technology co.,LTD • Room 403,4th Floor,97 Zhenhua Road,Futian District Shenzhen Address China **Test Result:** PASS

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory. CTA TESTING

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			CTATESTING	

#### TEST STANDARDS 1

The tests were performed according to following standards:

FCC Rules and Regulations Part 15 Subpart C (Section 15.207): Conducted limits. FCC Rules and Regulations Part 15 Subpart C (Section 15.202). FCC Rules and Regulations Part 15 Subpart C (Section 15.209): Radiated emission limits; general requirements. ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices

#### 2 SUMMARY

# 2.1 General Remarks

2.1 General Remarks	
Date of receipt of test sample	: Feb. 20, 2022
	C
Testing commenced on	: Feb. 20, 2022
Testing concluded on	: Mar. 23, 2022

# 2.2 Product Description

Product Name:	wireless charger
Model/Type reference:	S20
Hardware version:	V1.0
Software version:	V1.0 CTA
Test samples ID:	CTA220304024-1# (Engineer sample), CTA220304024-2# (Normal sample)
Power supply:	Input: DC 5V/9V/12V From External circuit Output: Wireless Charging: 15W(Max)
Operation frequency:	110KHz - 205KHz
Modulation type:	ASK
Antenna type:	Coil antenna

#### Description of the test mode 2.3

Equipment under test was operated during the measurement under the following conditions: Charging and communication mode

Test Modes:				
Mode 1	Wireless Charging	Recorded		
Mode 2	Standby	Pre-tested		
	CTIT.	·		

Note: All test modes were pre-tested, but we only recorded the worst case in this report.

# 2.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
Adapter	/	GS-551	Input: 100-240V~, 50/60Hz, 0.6A Output:DC 5V 2A/9V 1.67A/12V 1.67A	CE/FCC	laboratory
/	G	/	/	/	/

# 2.5 Modifications

No modifications were implemented to meet testing criteria.

#### 3 TEST ENVIRONMENT

#### Address of the test laboratory 3.1

#### Shenzhen CTA Testing Technology Co., Ltd.

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

### 3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations: FCC-Registration No.: 517856 Designation Number: CN1318

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

#### A2LA-Lab Cert. No.: 6534.01

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

### 3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges: Radiated Emission

24 ° C	251
ATA	
45 %	
9	
950-10	50mbar
	24 ° C 45 % 950-105

#### AC Power Conducted Emission:

	Temperature:	25 ° C
1	IN ON	
	Humidity:	46 %
	-INI	2
	Atmospheric pressure:	950-1050mbar

Atmospheric pressure:	950-1050mbar
Conducted testing:	ESTING
Temperature:	25 ° C
	C
Humidity:	44 %
	and the second sec
Atmospheric pressure:	950-1050mbar

#### Summary of measurement results 3.4

Compliant Compliant
Compliant
Compliant
Compliant
CIR
1

#### 3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods - Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTA Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. TESTING

Hereafter the best measurement capability for Shenzhen CTA laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)

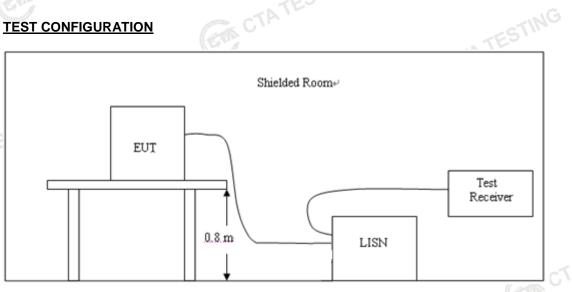
(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. CTATES

#### **Equipments Used during the Test** 3.6

			. C.			
	Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
	LISN	R&S	ENV216	CTA-308	2021/08/06	2022/08/05
	LISN	R&S	ENV216	CTA-314	2021/08/06	2022/08/05
	EMI Test Receiver	R&S	ESPI	CTA-307	2021/08/06	2022/08/05
	EMI Test Receiver	R&S	ESCI	CTA-306	2021/08/06	2022/08/05
TATE	Spectrum Analyzer	Agilent	N9020A	CTA-301	2021/08/06	2022/08/05
	Spectrum Analyzer	R&S	FSP	CTA-337	2021/08/06	2022/08/05
,	Vector Signal generator	Agilent	N5182A	CTA-305	2021/08/06	2022/08/05
	Analog Signal Generator	R&S	SML03	CTA-304	2021/08/06	2022/08/05
	Universal Radio Communication	CMW500	R&S	CTA-302	2021/08/06	2022/08/05
ſĠ	Temperature and humidity meter	Chigo	ZG-7020	CTA-326	2021/08/06	2022/08/05
	Ultra-Broadband Antenna	G Schwarzbeck	VULB9163	CTA-310	2021/08/07	2022/08/06
	Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2021/08/07	2022/08/06
	Loop Antenna	Zhinan	ZN30900C	CTA-311	2021/08/07	2022/08/06
	Horn Antenna	Beijing Hangwei Dayang	OBH100400	CTA-336	2021/08/06	2022/08/05
	Amplifier	Schwarzbeck	BBV 9745	CTA-312	2021/08/06	2022/08/05
	Amplifier	Taiwan chengyi	EMC051845B	CTA-313	2021/08/06	2022/08/05
	Directional coupler	NARDA	4226-10	CTA-303	2021/08/06	2022/08/05
	High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2021/08/06	2022/08/05
TE	High-Pass Filter	XingBo	XBLBQ-GTA27	CTA-403	2021/08/06	2022/08/05
CTA	Automated filter bank	Tonscend	JS0806-F	CTA-404	2021/08/06	2022/08/05
	Power Sensor	Agilent	U2021XA	CTA-405	2021/08/06	2022/08/05
	Amplifier	Schwarzbeck	BBV9719	CTA-406	2021/08/06	2022/08/05
G	Note: The Cal.Interva	was one year.	CIA CI		GIA CT	ATESTING

# TATESTING 4.1 AC Power Conducted Emission

### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

# CTATES AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

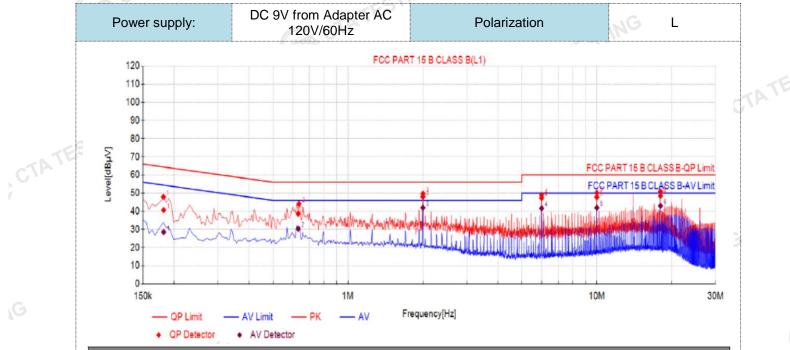
	Limit	(dBuV)
Frequency range (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* D		

Decreases with the logarithm of the frequency.

GE CTATESTING

# **TEST RESULTS**

1. Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:

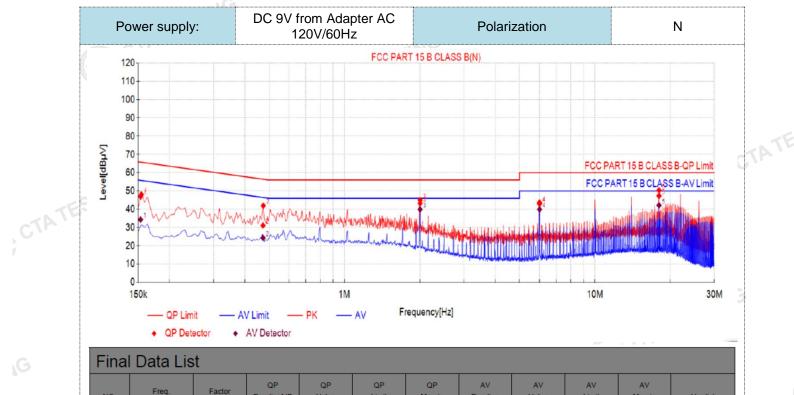


## **Final Data List**

- I													
5	NO.	Freq. [MHz]	Factor [dB]	QP Reading[dB µV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	A∨ Margin [dB]	Verdict	
۹ [	1	0.1818	10.50	30.18	40.68	64.40	23.72	18.07	28.57	54.40	25.83	PASS	
	2	0.6313	10.50	28.22	38.72	56.00	17.28	19.89	30.39	46.00	15.61	PASS	
	3	2.0030	10.50	37.50	48.00	56.00	8.00	31.49	41.99	46.00	4.01	PASS	
	4	6.0108	10.50	36.83	47.33	60.00	12.67	31.14	41.64	50.00	8.36	PASS	
	5	10.0170	10.50	37.26	47.76	60.00	12.24	31.46	41.96	50.00	8.04	PASS	TAN
	6	18.0348	10.50	37.93	48.43	60.00	11.57	32.49	42.99	50.00	7.01	PASS	D.M.
TING													
Ν	lote:.C	QP Value (	dBµV)= (	QP Read	ing (dBµ	V)+ Fact	tor (dB)						

- 2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)
- CTATESTING 3). QPMargin(dB) = QP Limit (dB $\mu$ V) - QP Value (dB $\mu$ V)
- 4). AVMargin(dB) = AV Limit (dBµV) AV Value (dBµV)

CATATE CATATE



1 1110												
NO.	Freq. [MHz]	Factor [dB]	QP Reading[dB µV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	A∨ Margin [dB]	Verdict	
1	0.1533	10.50	36.46	46.96	65.82	18.86	23.83	34.33	55.82	21.49	PASS	
2	0.4729	10.50	20.60	31.10	56.46	25.36	13.82	24.32	46.46	22.14	PASS	
3	2.0042	10.50	32.76	43.26	56.00	12.74	29.42	39.92	46.00	6.08	PASS	
4	6.0126	10.50	32.43	42.93	60.00	17.07	29.43	39.93	50.00	10.07	PASS	
5	18.0375	10.50	36.86	47.36	60.00	12.64	31.66	42.16	50.00	7.84	PASS	
5       18.0375       10.50       36.86       47.36       60.00       12.64       31.66       42.16       50.00       7.84         Note:.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) CTATESTING

#### 4.2 **Radiated Emission**

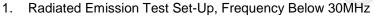
# Limit

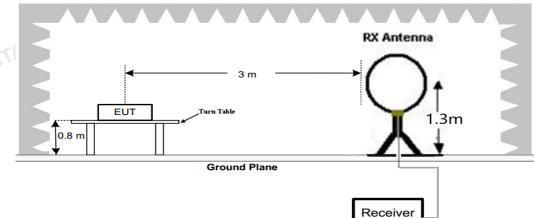
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

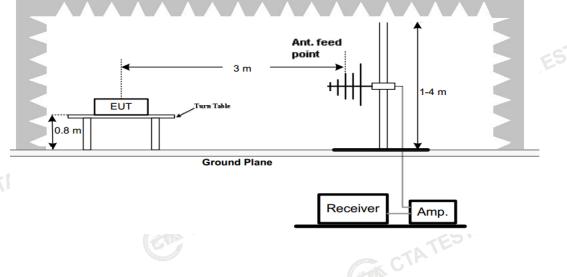
		Rad	diated emission limits	
	Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
	0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
TATE	0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
G	1.705-30	3	20log(30)+ 40log(30/3)	30
1	30-88	3	40.0	100
	88-216	3	43.5	150
	216-960	3	46.0	200
	Above 960	3	54.0	500
				CTAIL
	TEST CONFIGURATION	ON		

### **TEST CONFIGURATION**





#### Radiated Emission Test Set-Up, Frequency below 1000MHz 2.



#### Report No.: CTA22030402401

- 1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn 2. table from 0°C to 360°C to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed. 4.
- 5. Radiated emission test frequency band from 9KHz to 1000MHz.
- The distance between test antenna and EUT as following table states: 6.

Test Frequency range	Test Antenna Type	Test Distance	
9KHz-30MHz	Active Loop Antenna	3	
30MHz-1GHz	Bilog Antenna	3	

CTATEST. Setting test receiver/spectrum as following table states:

	Test Frequency range	Test Receiver/Spectrum Setting	Detector	
9KHz-150KHz		RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP	
	150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP	
	30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP	
R	ESULTS	GTA CTATES		STING
KI	Hz-30MHz		CTA TI	
	WOR	ST-CASE RADIATED EMISSION BELOW 30 MHz 🚿		

#### **TEST RESULTS**

#### For 9 KHz-30MHz

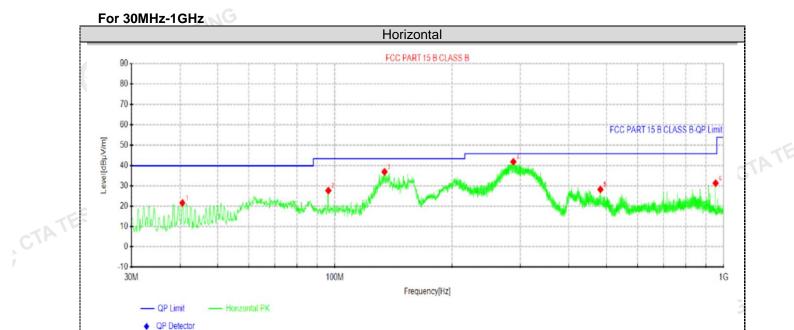
#### WORST-CASE RADIATED EMISSION BELOW 30 MHz

Frequency	Reading	Polar	Antenna Factor	Cable Loss	Emission Levels	Limits at 3m	Margin	Detector Mode
(MHz)	(dBµV/m)	Loop	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
0.1266(F)	66.67	Loop	23.63	0.02	90.32	105.56	15.24	PK
0.1266(F)	57.83	Loop	23.63	0.02	81.48	85.56	4.08	AV
0.110	48.90	Loop	23.51	0.02	72.43	106.78	34.35	PK
0.110	42.75	Loop	23.51	0.02	66.28	86.78	20.50	AV
0.288	29.31	Loop	23.82	-0.17	52.96	98.42	45.46	QP
0.471	27.50	Loop	24.21	-0.28	51.43	94.14	42.71	QP
0.549	24.15	Loop	24.32	-0.3	48.17	72.81	24.64	QP
· C+								

Remark:

- 2. The test limit distance is 3m limit.
- PK means Peak Value, QP means Quasi Peak Value, AV means Average Value. 3.
- F means Fundamental Frequency. 4.
- Emission level (dBuV/m) =Reading + Antenna Factor + Cable Loss. 5.
- 6. Margin value = Limit value- Emission level.

Data of measurement within this frequency range shown "-- in the table above means the reading of 1 emissions are attenuated more than 20dB below the permissible limits and not recorded.



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CTA TE

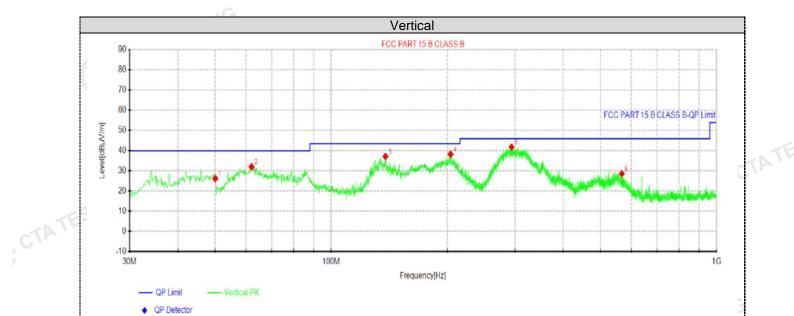
### Suspected Data Lis

-	Suspected Data List										
1	۷0.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
	1	40.5488	38.76	21.69	-17.07	40.00	18.31	100	210	Horizontal	
	2	96.2025	46.69	27.73	-18.96	43.50	15.77	100	18	Horizontal	
	3	134.153	58.56	37.04	-21.52	43.50	6.46	100	82	Horizontal	
5	4	287.777	59.51	41.97	-17.54	46.00	4.03	100	203	Horizontal	
	5	482.02	42.86	28.31	-14.55	46.00	17.69	100	138	Horizontal	
	6	953.44	40.52	31.44	-9.08	46.00	14.56	100	66	Horizontal	

Note:1).Level ( $dB\mu V/m$ ) = Reading ( $dB\mu V$ )+ 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) CTATESTING



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### Suspected Data List

CTATESTING

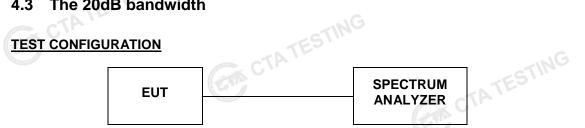
Susp	Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	50.0062	42.31	26.25	-16.06	40.00	13.75	100	335	Vertical		
2	62.1312	50.82	32.04	-18.78	40.00	7.96	100	16	Vertical		
3	138.276	58.87	37.16	-21.71	43.50	6.34	100	71	Vertical		
4	203.993	57.50	38.29	-19.21	43.50	5.21	100	357	Vertical		
5	293.718	59.21	41.78	-17.43	46.00	4.22	100	0	Vertical		
6	567.743	41.65	28.59	-13.06	46.00	17.41	100	357	Vertical		

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)

4.3 The 20dB bandwidth



### **TEST PROCEDURE**

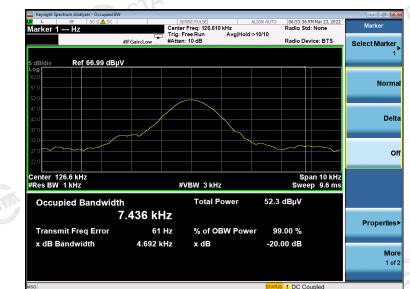
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be deomonstrated by measuring the radiated emissions.

#### LIMIT

The 20dB bandwidth shall be less than 80% of the permitted frequency band.

### **TEST RESULTS**

Mode	Freq (KHz)	20dB Bandwidth (KHz)	Conclusion
Tx Mode	126.6	4.692	PASS





### Standard Applicable

#### Standard Applicable

CTA TESTING For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to GTA CTATE ensure that no antenna other than that furnished by the responsible party shall be used with the device.

#### Antenna Information

The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is GIA CTATES 0dBi.



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