



Shenzhen CTA Testing Technology Co., Ltd.

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

FCC PART 15 SUBPART CTEST REPORT

FCC PART 15.236

Report Reference No.: CTA26072802901

FCC ID.: 2A16I-KS209BT

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Date of issue: Aug. 27, 2026

Testing Laboratory Name: Shenzhen CTA Testing Technology Co., Ltd.

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

Applicant's name: Guangzhou Havit Technology Co., Ltd.

Address: ROOM 1307, 13F, PHASE 2 B, C BUILDING OF POLY WORLD, TRADE CENTER, NO.1000, XINGANG EAST ROAD, HAIZHU, GUANGDONG, China

Test specification.....:

Standard.....: FCC Part 15.236

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Test item description.....: UHF wireless microphone

Trade Mark.....: HAVIT

Manufacturer: Guangzhou Havit Technology Co., Ltd.

Model/Type reference: KS209BT

Listed Models: N/A

Modulation Type.....: pi/4 DQPSK

Operation Frequency: 510-529.5MHz

Rating: Input: 5V=600mA

Result: PASS

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TEST REPORT

Equipment under Test : UHF wireless microphone

Model /Type : KS209BT

Series Model : N/A

Applicant : **Guangzhou Havit Technology Co., Ltd.**

Address : ROOM 1307, 13F, PHASE 2 B, C BUILDING OF POLY WORLD, TRADE CENTER, NO.1000, XINGANG EAST ROAD, HAIZHU, GUANGDONG, China

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Address : ROOM 1307, 13F, PHASE 2 B, C BUILDING OF POLY WORLD, TRADE CENTER, NO.1000, XINGANG EAST ROAD, HAIZHU, GUANGDONG, China

Test Result:	PASS
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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

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1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.236](#): Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-698 MHz.

[ANSI C63.10-2020 +Cor. 1-2023+ C63.10a-2024+ Errata to C63.10a-2024](#): American National Standard for Testing Unlicensed Wireless Devices

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	Jul. 28, 2026
Testing commenced on	:	Jul. 28, 2026
Testing concluded on	:	Aug. 27, 2026

2.2 Product Description

Product Name:	UHF wireless microphone
Model/Type reference:	KS209BT
Power supply:	Input: 5V=600mA
Battery:	Model: IMR18650-1200mAh Brand: N/A Rated Voltage: 3.7V Charge Limit Voltage: 4.2V Capacity: 1200mAh Manufacturer: Xinxiang Hongli Supply Source Technology Co.,Ltd.
Hardware version:	N/A
Software version:	N/A
Testing sample ID:	CTA260728029-1# (Engineer sample) CTA260728029-2#(Normal sample)
microphone	
Frequency:	510 MHz -529.5MHz
Nominal channel bandwidth	≤200KHz
Modulation Type:	pi/4 DQPSK
Antenna type:	Spring antenna
Antenna gain:	2 dBi

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

2.3 Equipment Under Test

Power supply system utilised

Refer to section 2.2

2.4 Short description of the Equipment under Test (EUT)

This is a UHF wireless microphone.

For more details, refer to the user's manual of the EUT.

2.5 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

● Adapter information (Auxiliary test supplied by test Lab):	Model: HW-100225C00 Input: AC100-240V 50/60Hz 0.75A Output: DC5V 2A, DC9V 2A, DC10V 2.25A
---	---

2.6 EUT operation mode

The EUT has been tested under typical operating condition. The EUT will staying in continuous transmitting when switch to the specific test frequency.

Frequency:

	Channel	Frequency (MHz)		Channel	Frequency (MHz)
Group A	1	510.0	Group B	21	520.0
	2	510.5		22	520.5
	3	511.0		23	521.0
	4	511.5		24	521.5
	5	512.0		25	522.0
	6	512.5		26	522.5
	7	513.0		27	523.0
	8	513.5		28	523.5
	9	514.0		29	524.0
	10	514.5		30	524.5
	11	515.0		31	525.0
	12	515.5		32	525.5
	13	516.0		33	526.0
	14	516.5		34	526.5
	15	517.0		35	527.0
	16	517.5		36	527.5
	17	518.0		37	528.0
	18	518.5		38	528.5
	19	519.0		39	529.0
	20	519.5		40	529.5

Testing Frequency List:

Group A

Channel	Frequency(MHz)
1	510
11	515
20	519.5

Group B

Channel	Frequency(MHz)
21	520
31	525
40	529.5

2.7 Block Diagram of Test Setup

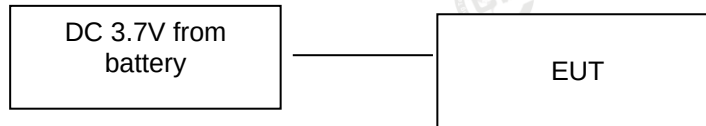
AC Conducted Test



Radiated Test



Conducted Test



2.8 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for the device filing to comply with Section 15.236 of the FCC Part 15, Subpart C Rules.

2.9 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

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:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4 Summary of measurement results

Test Specification clause	Test case	Test result
§15.236(d)	RF Power Output	Compliant
§ 15.236(f)(1)(ii)	Occupied Bandwidth	Compliant
§15.236(g)	Necessary Bandwidth	Compliant
§15.236(g)	Spurious emissions	Compliant
15.236(f)(1)(iii)	Frequency Stability	Compliant
§15.207	Conducted Emissions	Compliant

Remark:

1. The measurement uncertainty is not included in the test result.
2. We tested all test mode and recorded worst case in report

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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 TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" 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.

Hereafter the best measurement capability for Shenzhen CTA Testing Technology Co., Ltd. :

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz	3.02 dB	(1)
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)
Output Peak power	30MHz~18GHz	0.55 dB	(1)
Power spectral density	/	0.57 dB	(1)
Spectrum bandwidth	/	1.1%	(1)
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.10 dB	(1)
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.32 dB	(1)
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.54 dB	(1)
Time	/	± 2%	(1)

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

3.6 Equipments Used during the Test

Item.	Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
AC Conducted Test Equipment						
☒ 1	LISN	R&S	ENV216	CTA-308	2026/07/23	2027/07/22
☒ 2	LISN	R&S	ENV216	CTA-314	2026/07/23	2027/07/22
☒ 3	EMI Test Receiver	R&S	ESPI	CTA-307	2026/07/23	2027/07/22
☒ 4	CE Cable	SKET	RF Cable (9kHz-30MHz)	CTA-367	2026/07/23	2027/07/22
☒ 5	Temperature and humidity meter	Chigo	ZG-7020	CTA-327	2026/07/25	2027/07/24
☒ 6	EMI Test Software	Tonscend	TS@JS32-CE	5.0.0.1	N/A	N/A
RF Radiation Test Equipment						
☒ 1	EMI Test Receiver	R&S	ESCI	CTA-306	2026/07/23	2027/07/22
☒ 2	Spectrum analyzer	R&S	FSV40-N	CTA-344	2026/05/16	2027/05/15
☒ 3	Ultra-Broadband Antenna	Schwarzbeck	VULB9163	CTA-310	2023/10/17	2026/10/16
☒ 4	Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2023/10/13	2026/10/12
☒ 5	Loop Antenna	Zhinan	ZN30900C	CTA-311	2023/10/17	2026/10/16
☒ 6	Horn Antenna	Schwarzbeck	BBHA 9170	CTA-346	2025/05/18	2028/05/17
☒ 7	Amplifier	Schwarzbeck	BBV9745	CTA-312	2026/07/23	2027/07/22
☒ 8	Amplifier	Tonscend	TAP-011840	CTA-313	2026/07/23	2027/07/22
☒ 9	Amplifier	SKET	LNPA 1840G-50	CTA-345	2026/05/16	2027/05/15
☒ 10	6dB attenuator	Shanghaihuaxiang	GZL-TS5-6-6	CTA-347	2026/05/16	2027/05/15
☒ 11	RF cable	SKET	RF Cable (9kHz-1GHz)	CTA-360	2025/09/25	2026/09/24
☒ 12	RF cable	SKET	RF Cable (1GHz-18GHz)	CTA-361	2025/09/25	2026/09/24
☒ 13	Coaxialcable (1GHz-40GHz)	SKET	RE-04-D	CTA-348	2026/05/16	2027/05/15
☒ 14	Coaxialcable (1GHz-40GHz)	SKET	RE-04-M	CTA-349	2026/05/16	2027/05/15
☒ 15	Coaxialcable (1GHz-40GHz)	SKET	RE-04-L	CTA-350	2026/05/16	2027/05/15
☒ 16	Temperature and humidity meter	Chigo	ZG-7020	CTA-328	2026/07/25	2027/07/24
☐ 17	2.4GFilter	HX Microwave	HXLBQ-DZA61	CTA-365	2026/07/23	2027/07/22
☐ 18	5GFilter	CONCEPT	CNF05150M058 50Q16A	CTA-366	2026/07/23	2027/07/22
☐ 19	902-928Filter	HX Microwave	HXLBQ-DZA05	CTA-371	2026/07/23	2027/07/22
☐ 20	400-415MHzFilter	HX Microwave	HXLBQ-DZA257LC	CTA-369	2026/07/23	2027/07/22
☒ 21	500-650MHzFilter	Tonscend	TSSF6-500-650	CTA-370	2026/07/23	2027/07/22
☐ 22	High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2026/07/23	2027/07/22
☐ 23	High-Pass Filter	XingBo	XBLBQ-GTA27	CTA-403	2026/07/23	2027/07/22
☐ 24	High-Pass Filter	XingBo	XBLBQ-GTA10	CTA-364	2026/07/23	2027/07/22
☒ 25	EMI Test Software	Tonscend	TS@JS32-RE	5.0.0.2	N/A	N/A
RF Conducted Test Equipment						
☒ 1	Spectrum Analyzer	Agilent	N9020A	CTA-342	2026/07/23	2027/07/22

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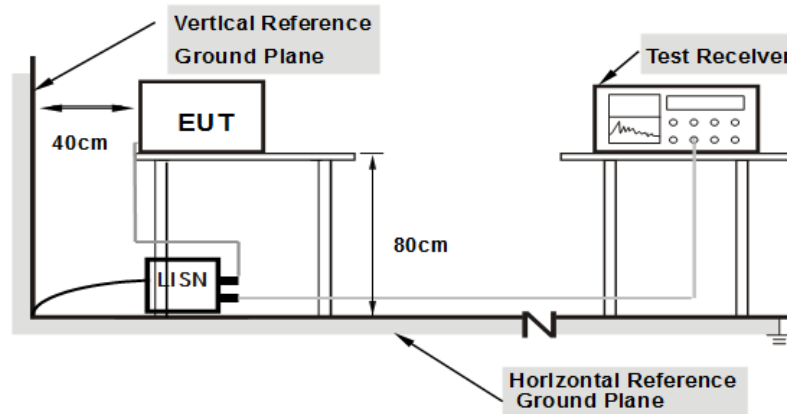
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☐ 2	Spectrum analyzer	R&S	FSV40-N	CTA-344	2026/05/16	2027/05/15
☒ 3	RF Coaxial Cable	SKET	RF Cable (9kHz-40GHz)	CTA-368	2026/07/23	2027/07/22
☒ 4	Temperature and humidity meter	ZG-7020	Chigo	CTA-329	2026/07/25	2027/07/24
☒ 5	Programmable Constant Temperature And Humidity Test Chamber	DONGGUAN JINGYU	HT-H-408	CTA-053	2026/07/23	2027/07/22
☐ 6	Vector Signal generator	Agilent	N5182A	CTA-305	2026/07/23	2027/07/22
☐ 7	Analog Signal Generator	R&S	E4421B	CTA-304	2026/07/23	2027/07/22
☐ 8	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	CTA-302	2026/07/23	2027/07/22
☒ 9	Automatic control unit	Tonscend	JS0806-2	CTA-351	2026/07/23	2027/07/22
☒ 10	RF Test Software	Tonscend	TS@JS1120-3	3.1.65	N/A	N/A
☒ 11	RF Test Software	Tonscend	TS@JS1120	3.1.46	N/A	N/A
☒ 12	RF Connection Cable	N/A	N/A	1#	Each time	N/A

4 TEST CONDITIONS AND RESULTS

4.1 AC Power Conducted Emission

TEST CONFIGURATION



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.

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 C63.10-2020.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2020
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2020
- 4 The EUT received DC5V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz 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.
- 8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

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

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

* Decreases with the logarithm of the frequency.

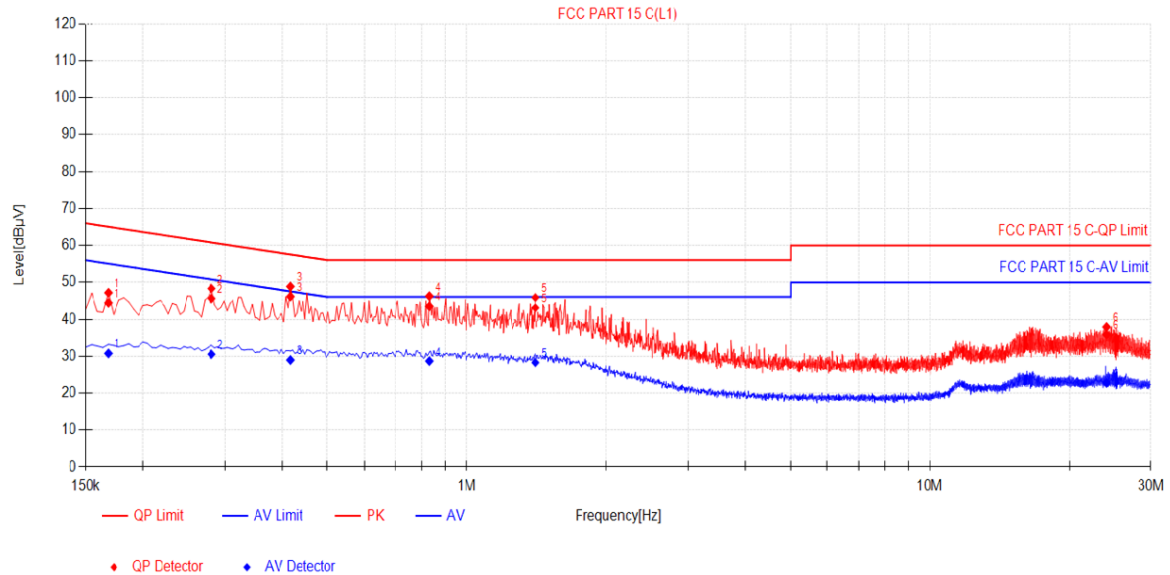
TEST RESULTS

Remark:

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:

Polarization:

L

**Final Data List**

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]	AV Margin [dB]	Verdict
1	0.168	9.90	34.54	44.44	65.06	20.62	20.86	30.76	55.06	24.30	PASS
2	0.2805	9.87	35.71	45.58	60.80	15.22	20.67	30.54	50.80	20.26	PASS
3	0.4155	10.10	36.03	46.13	57.54	11.41	18.86	28.96	47.54	18.58	PASS
4	0.8295	10.43	33.08	43.51	56.00	12.49	18.24	28.67	46.00	17.33	PASS
5	1.4055	10.45	32.67	43.12	56.00	12.88	17.81	28.26	46.00	17.74	PASS
6	24.081	13.16	22.70	35.86	60.00	24.14	9.60	22.76	50.00	27.24	PASS

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

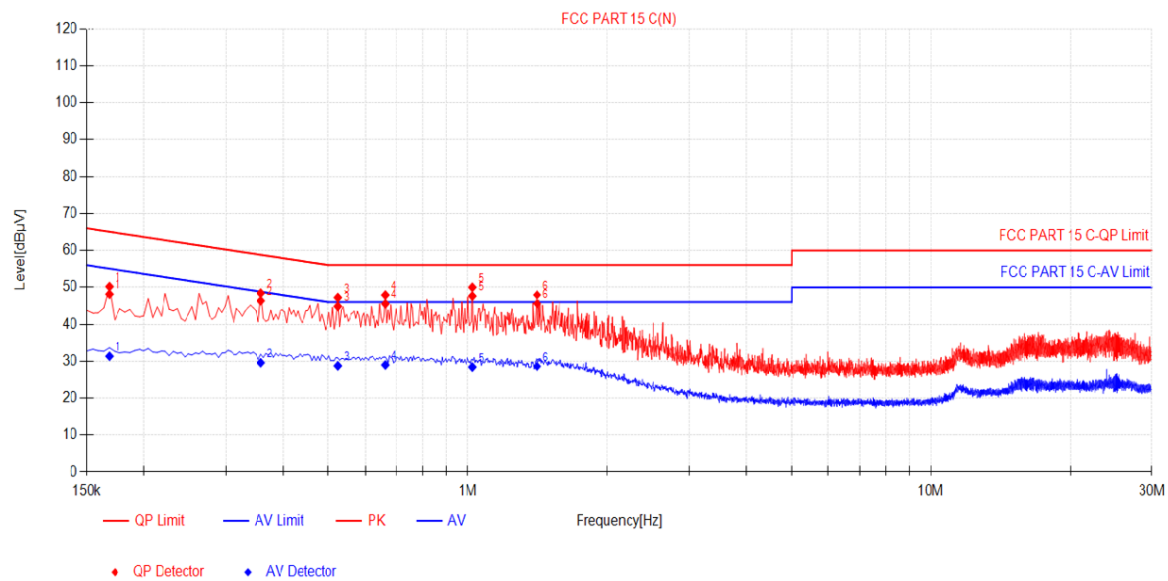
2). Factor (dB) = insertion loss of LISN (dB) + Cable loss (dB)

3). QPMargin(dB) = QP Limit (dBμV) - QP Value (dBμV)

4). AVMargin(dB) = AV Limit (dBμV) - AV Value (dBμV)

Polarization:

N



Final Data List

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]	AV Margin [dB]	Verdict
1	0.168	9.89	38.24	48.13	65.06	16.93	21.46	31.35	55.06	23.71	PASS
2	0.357	10.18	36.18	46.36	58.80	12.44	19.39	29.57	48.80	19.23	PASS
3	0.5235	10.26	34.60	44.86	56.00	11.14	18.48	28.74	46.00	17.26	PASS
4	0.663	10.29	35.25	45.54	56.00	10.46	18.67	28.96	46.00	17.04	PASS
5	1.023	10.38	37.25	47.63	56.00	8.37	18.02	28.40	46.00	17.60	PASS
6	1.41	10.41	35.17	45.58	56.00	10.42	18.19	28.60	46.00	17.40	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 (dBμV) - QP Value (dBμV)

4). AVMargin(dB) = AV Limit (dBμV) - AV Value (dBμV)

4.2 Maximum EIRP Output Power

Limit

The maximum radiated power shall not exceed the following values:

- (1) In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP
- (2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. Use the integrated band/channel power analyzer function to determine the average power

- 1). Set the Centre frequency of the spectrum analyzer to the transmitting frequency;
- 2). Set the span=300KHz, RBW=3KHz, VBW=10KHz, Sweep time=auto;
- 3). Detector = Peak;
- 4). Trace mode = Max. hold.

Test Configuration



Test Results

Modulation	Channel	Output power (dBm)	Ant. Gain	EIRP (dBm)	Limit (dBm)	Result
pi/4 DQPSK	1	9.82	2	11.82	16.99	Pass
	11	9.99	2	11.99	16.99	Pass
	20	10.26	2	12.26	16.99	Pass

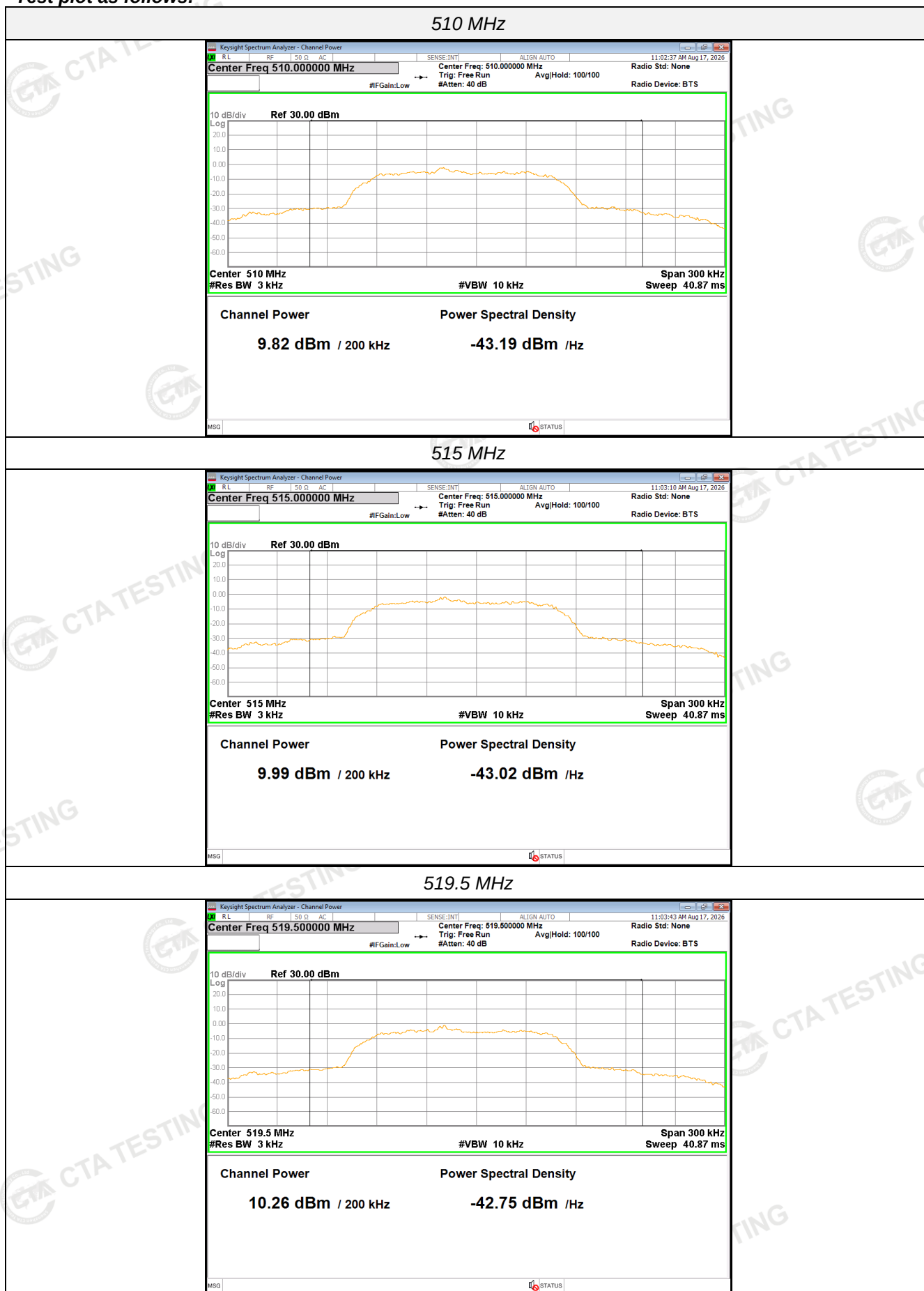
Modulation	Channel	Output power (dBm)	Ant. Gain	EIRP (dBm)	Limit (dBm)	Result
pi/4 DQPSK	21	10.12	2	12.12	16.99	Pass
	31	10.33	2	12.33	16.99	Pass
	40	10.37	2	12.37	16.99	Pass

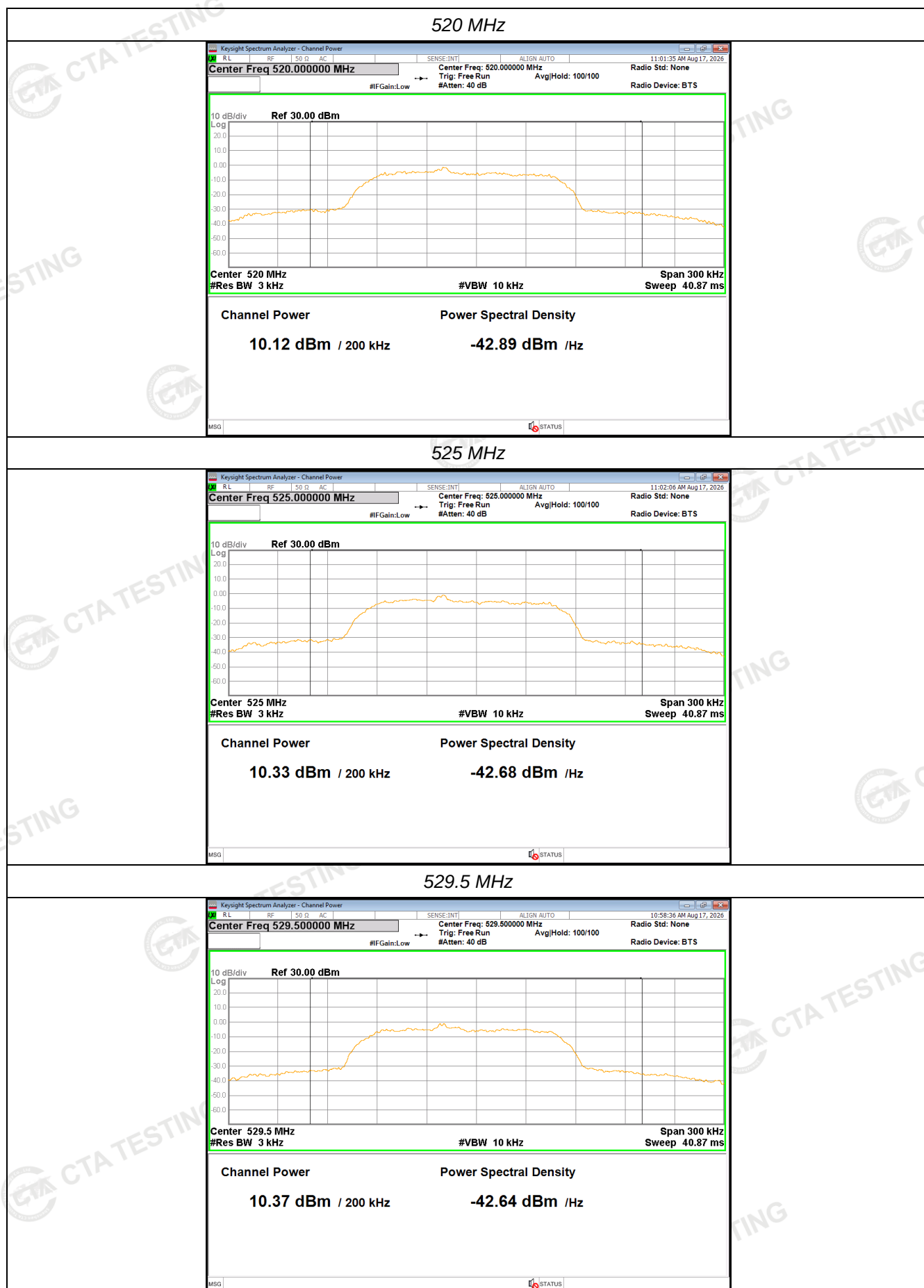
Note: 1.The test results including the cable loss.

1. The RF cable is 50 ohm.

2. EIRP (dBm)= Output power (dBm)+ Ant. Gain(dBi)

Test plot as follows:





4.3 Occupied Bandwidth& 20dB Bandwidth

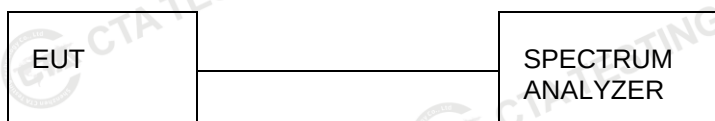
Limit

One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz.

Test Procedure

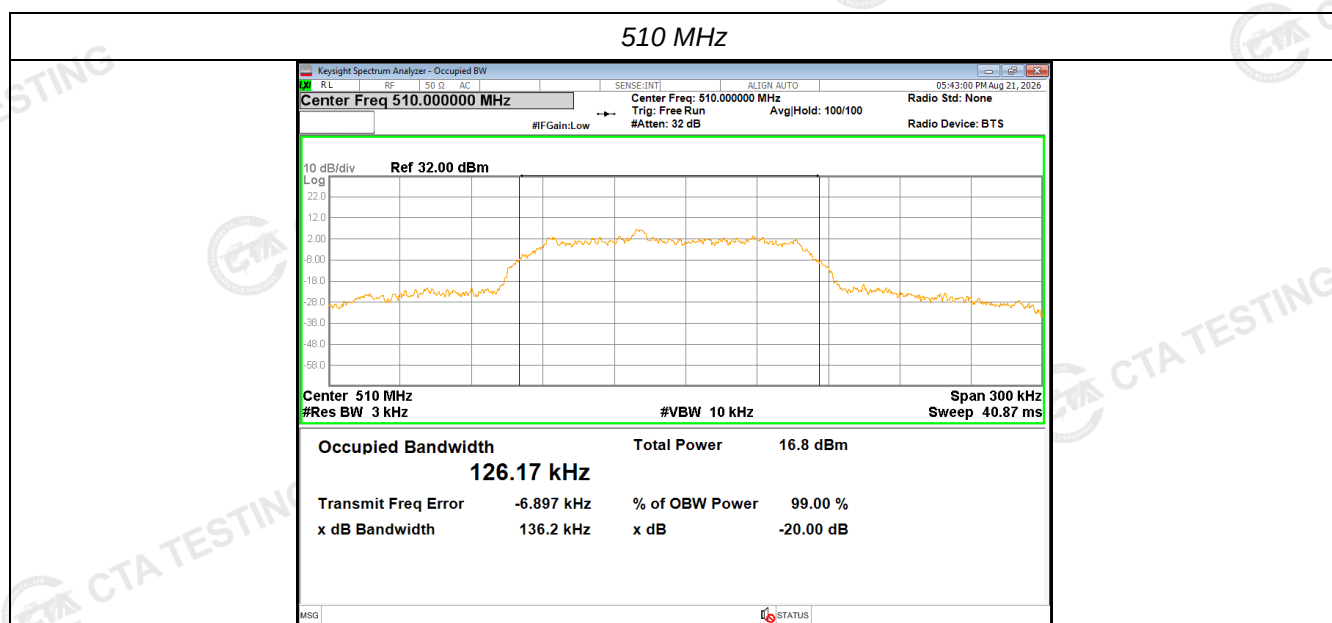
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 3 KHz RBW and 10 KHz VBW.

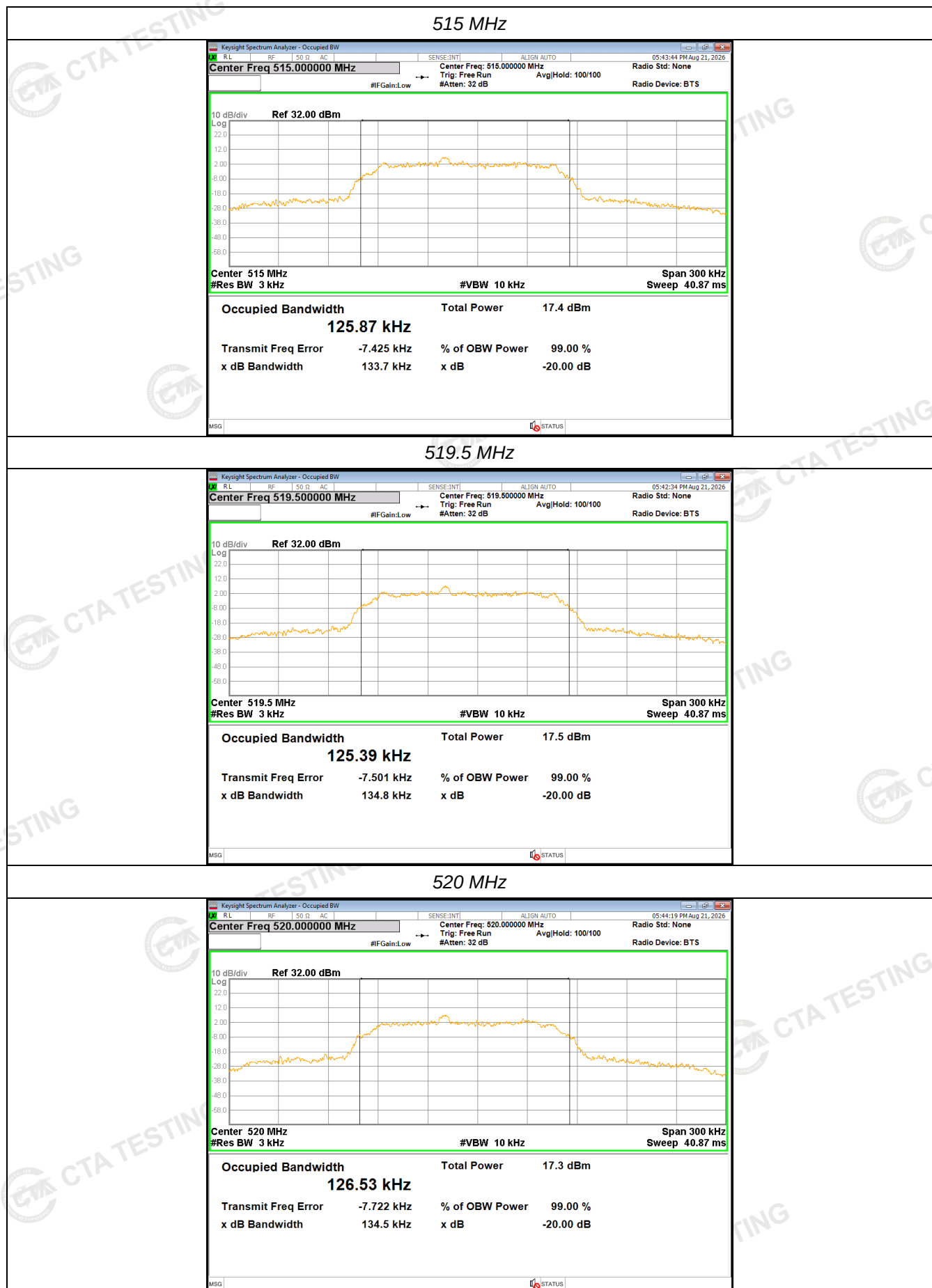
Test Configuration

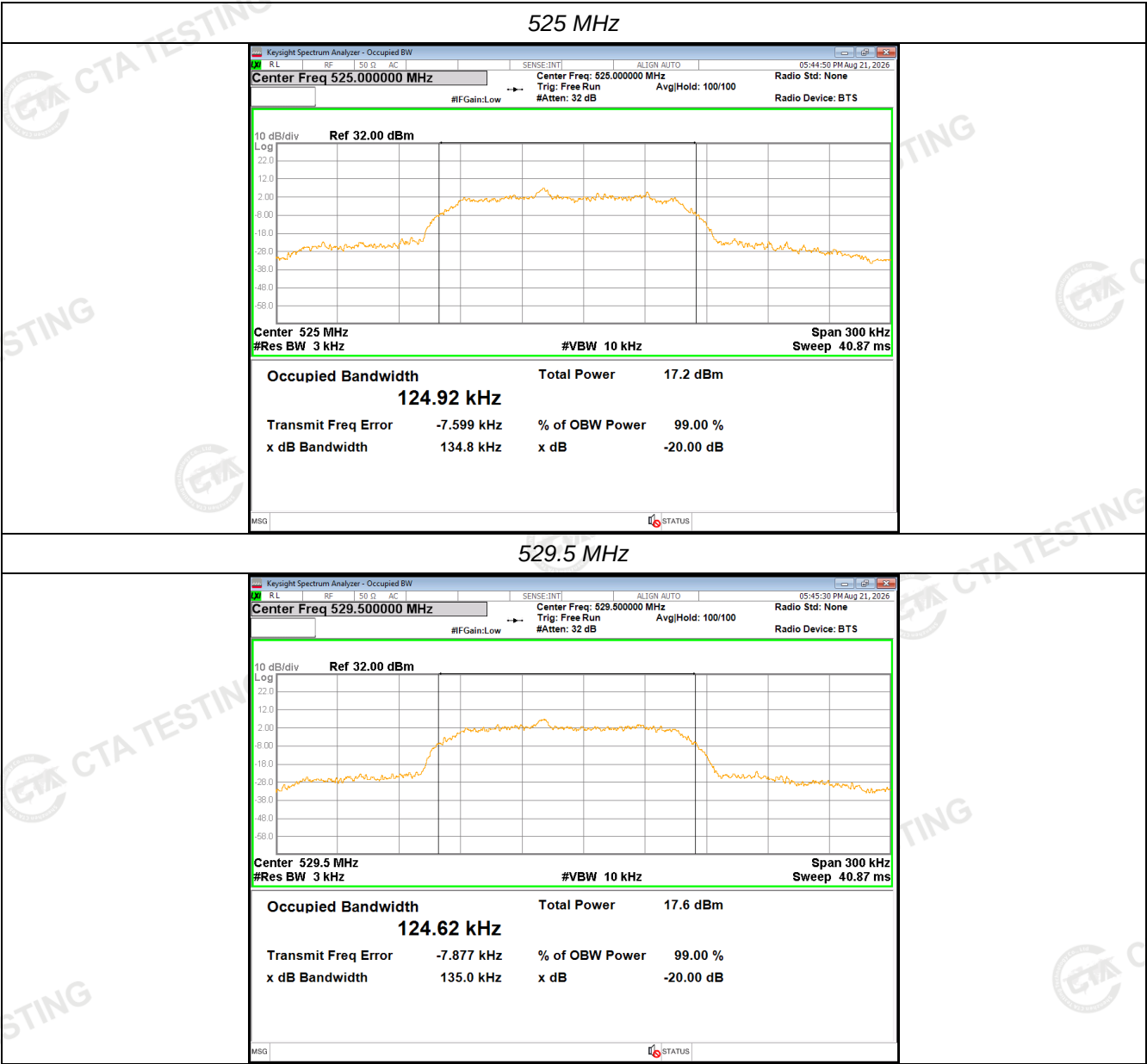


Test Results

Center Frequency (MHz)	99% Occupied Channel Bandwidth (KHz)	-20dB Occupied Channel Bandwidth (KHz)	Limits (KHz)	Results
510.0	126.170	136.200	200	PASS
515.0	125.870	133.700	200	PASS
519.5	125.390	134.800	200	PASS
520.0	126.530	134.500	200	PASS
525.0	124.820	134.800	200	PASS
529.5	124.620	135.000	200	PASS







4.4 Necessary Bandwidth

LIMIT

The following limits are applicable, where B is the *Declared Channel Bandwidth*.

The mean Power Density, measured with 1 kHz measurement bandwidth and RMS detector, of the transmitter unwanted emissions shall not exceed the limits of the masks provided in figure 1 for equipment employing analogue modulation and figure 2 for equipment employing digital modulation, but excluding WMAS.

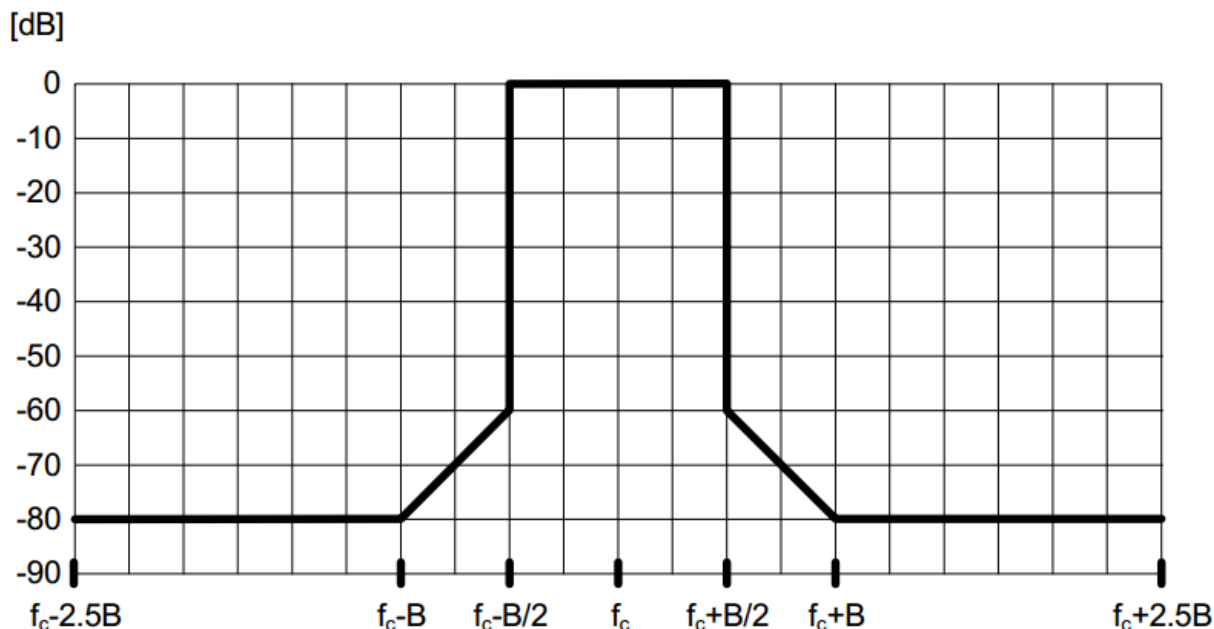


Figure 1: Transmit spectral power mask for equipment employing analogue modulation, RBW = 1 kHz

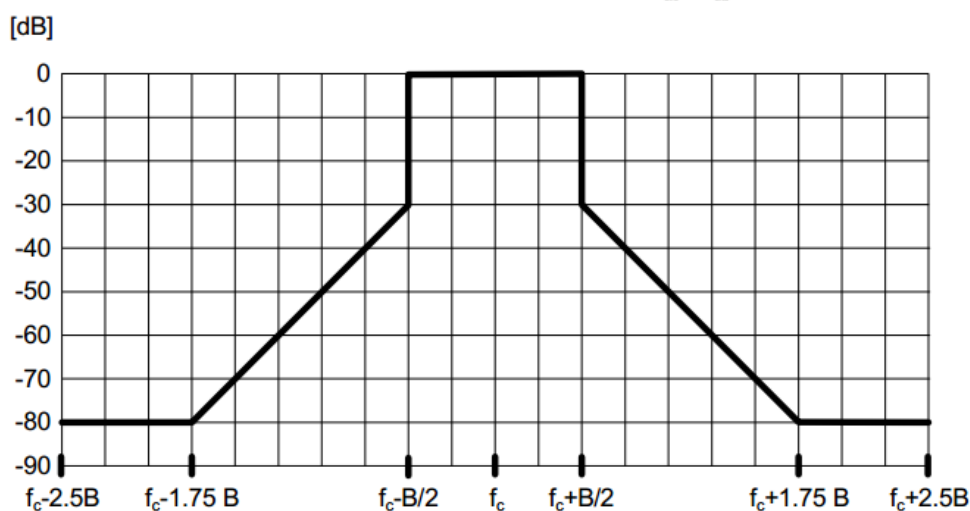
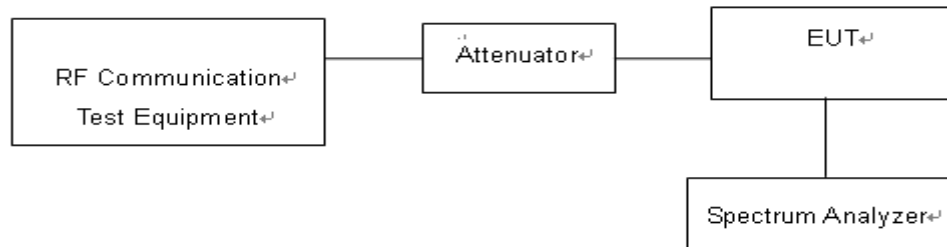
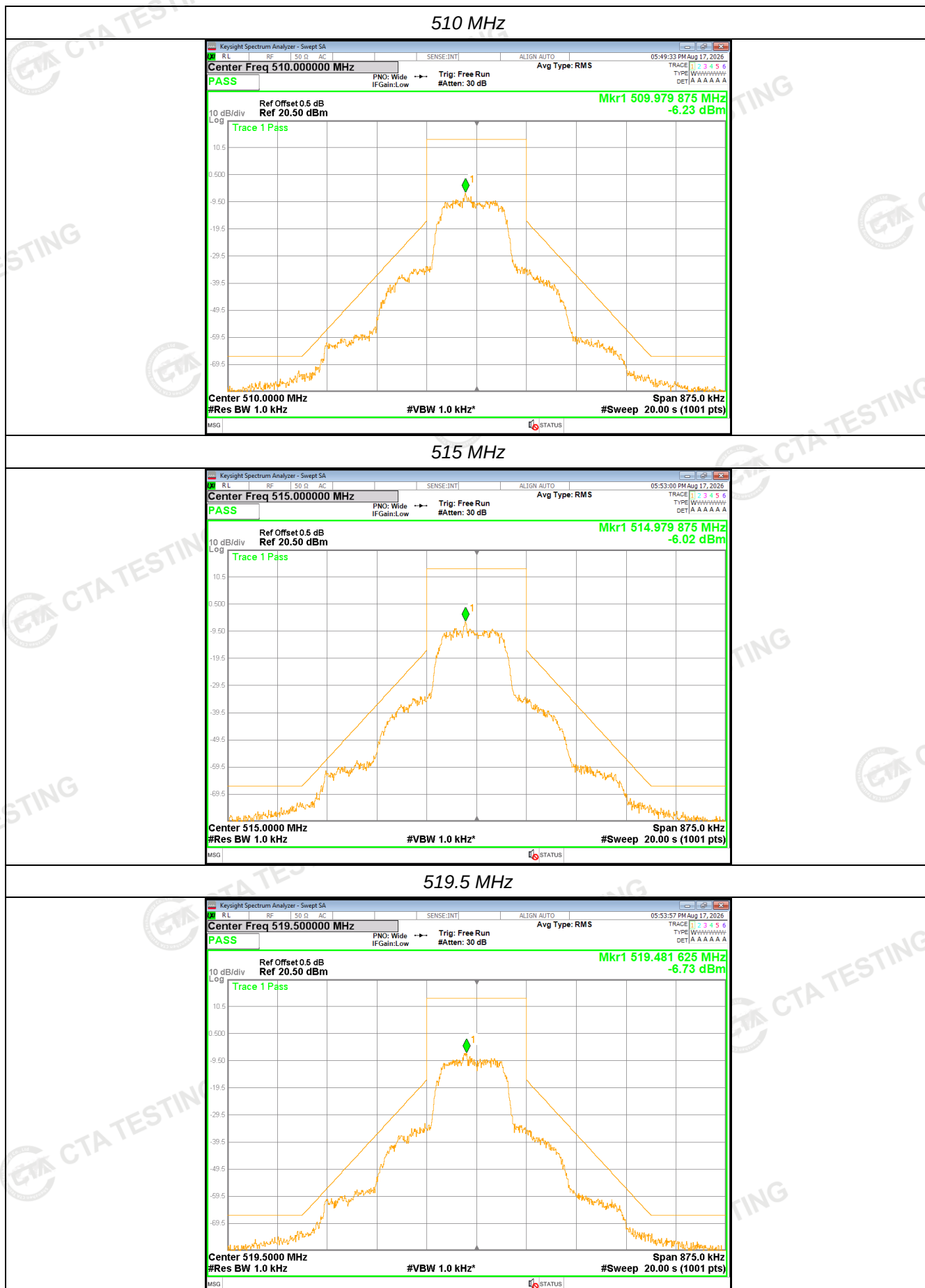


Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMAS, RBW = 1 kHz

TEST PROCEDURE

Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=1 kHz, VBW= 1 kHz, RMS detector , and max hold. Measurements utilizing these setting are made of the in-band reference level, bandedge and out-of-band emissions.

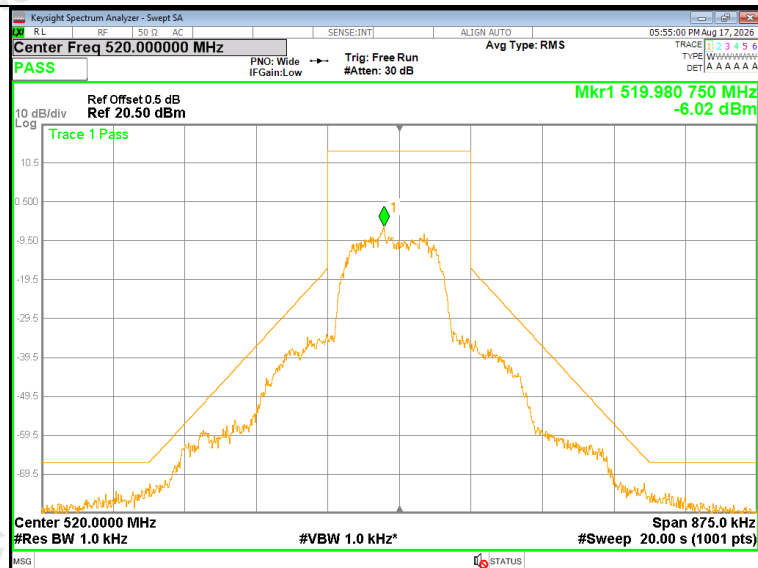
TEST CONFIGURATION

TEST RESULTS**Shenzhen CTA Testing Technology Co., Ltd.**

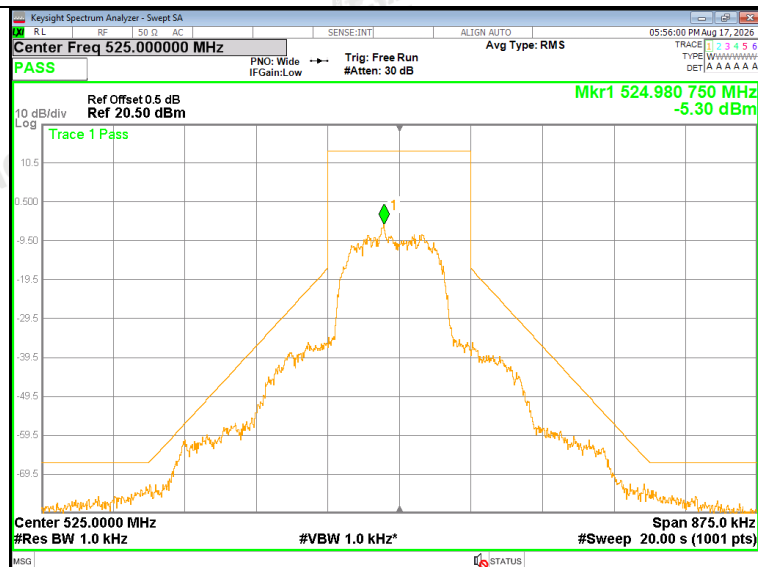
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

Tel: +86-755 2322 5875 E-mail: cta@cta-test.cn Web: http://www.cta-test.cn

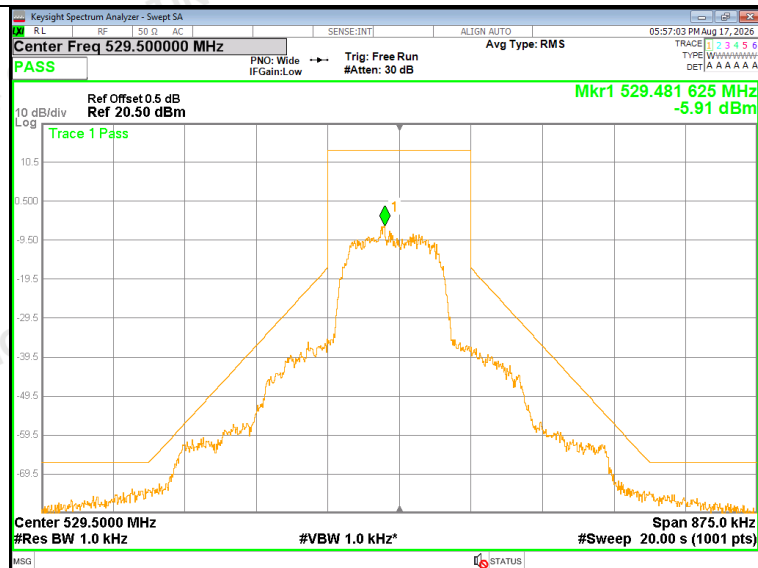
520 MHz



525 MHz



529.5 MHz



4.5 Transmitter spurious emissions

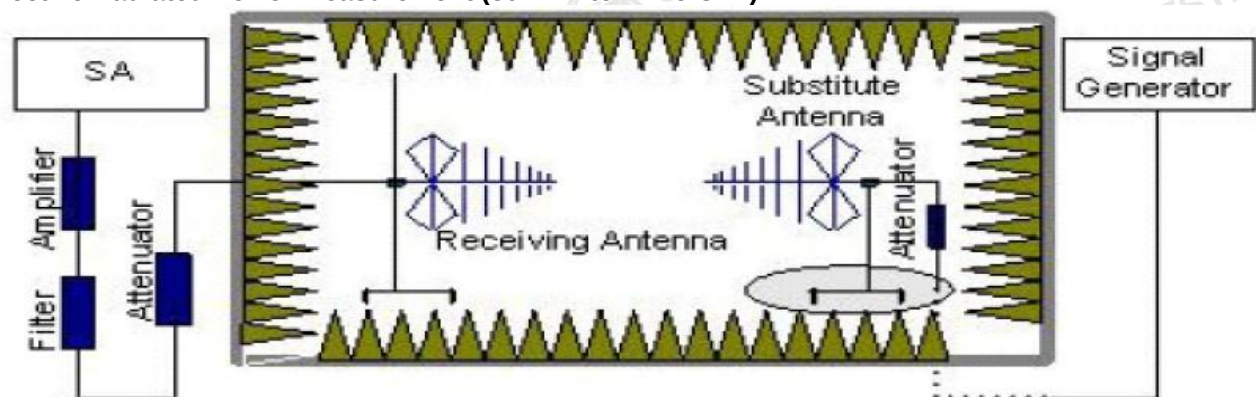
Limit

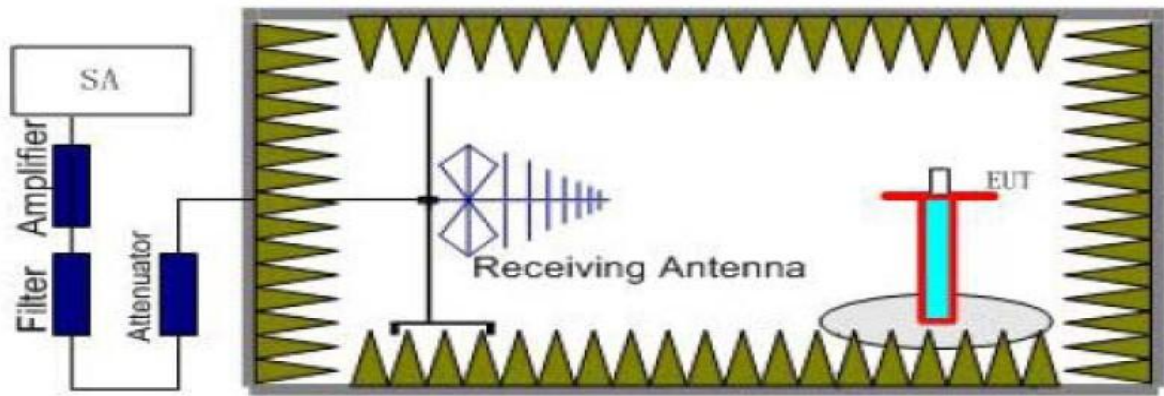
Spurious emissions are emissions outside the frequency range(s) of the equipment. The power of the spurious emissions shall not exceed the limits of table as below:

Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
1 GHz < $f \leq F_{upper}$	-30 dBm	$F_c + 2,5 B \leq f \leq f_c + 10 B$: 30 kHz $F_c + 10 B < f \leq f_c + 12 B$: 300 kHz $f > f_c + 12 B$: 1 MHz $f < f_c - 12 B$: 1 MHz $f_c - 12 B \leq f < f_c - 10 B$: 300 kHz $f_c - 10 B \leq f \leq f_c - 2,5 B$: 30 kHz

Test Configuration

Effective Radiated Power measurement (30 MHz to 12.75 GHz)





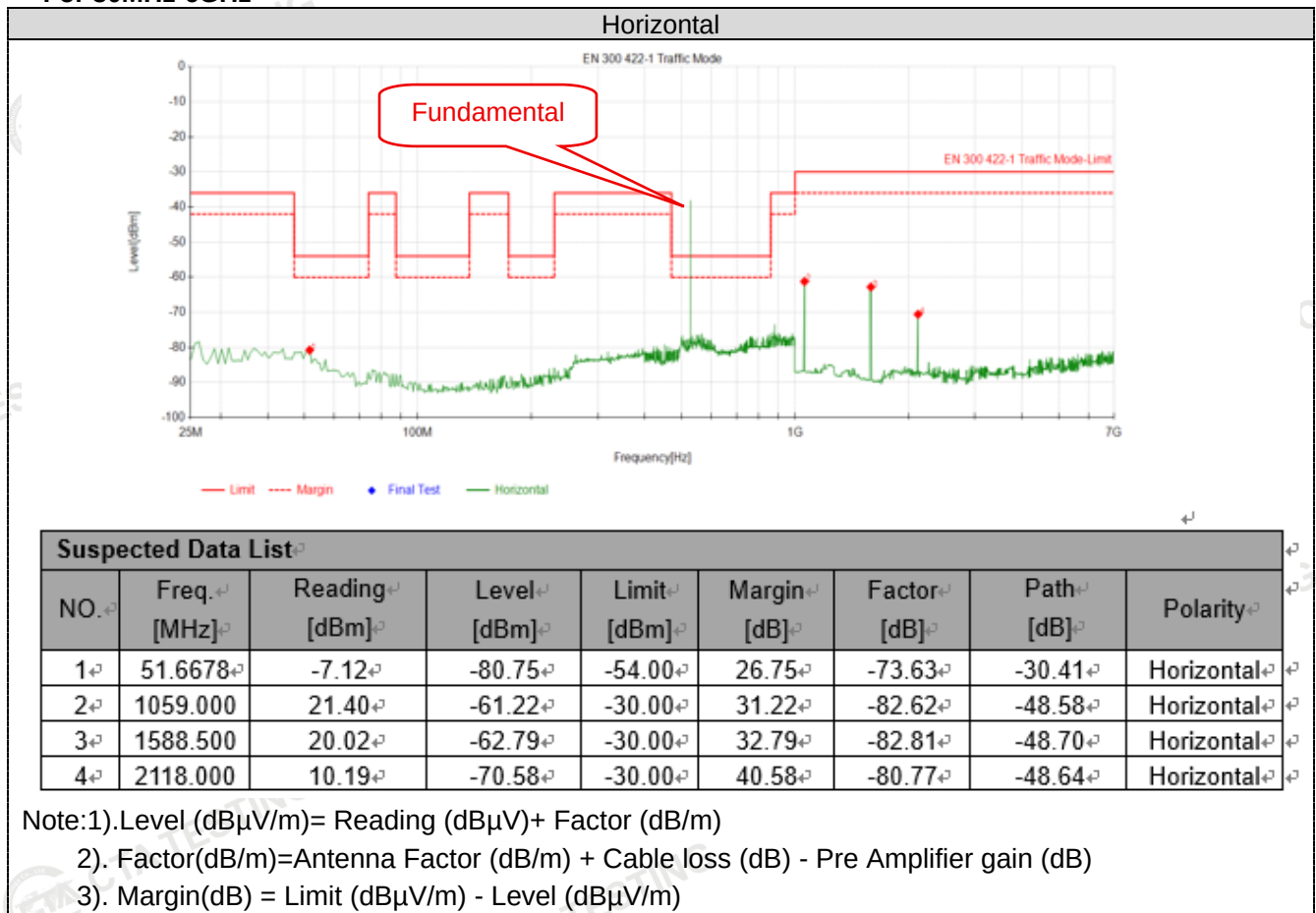
TEST PROCEDURE

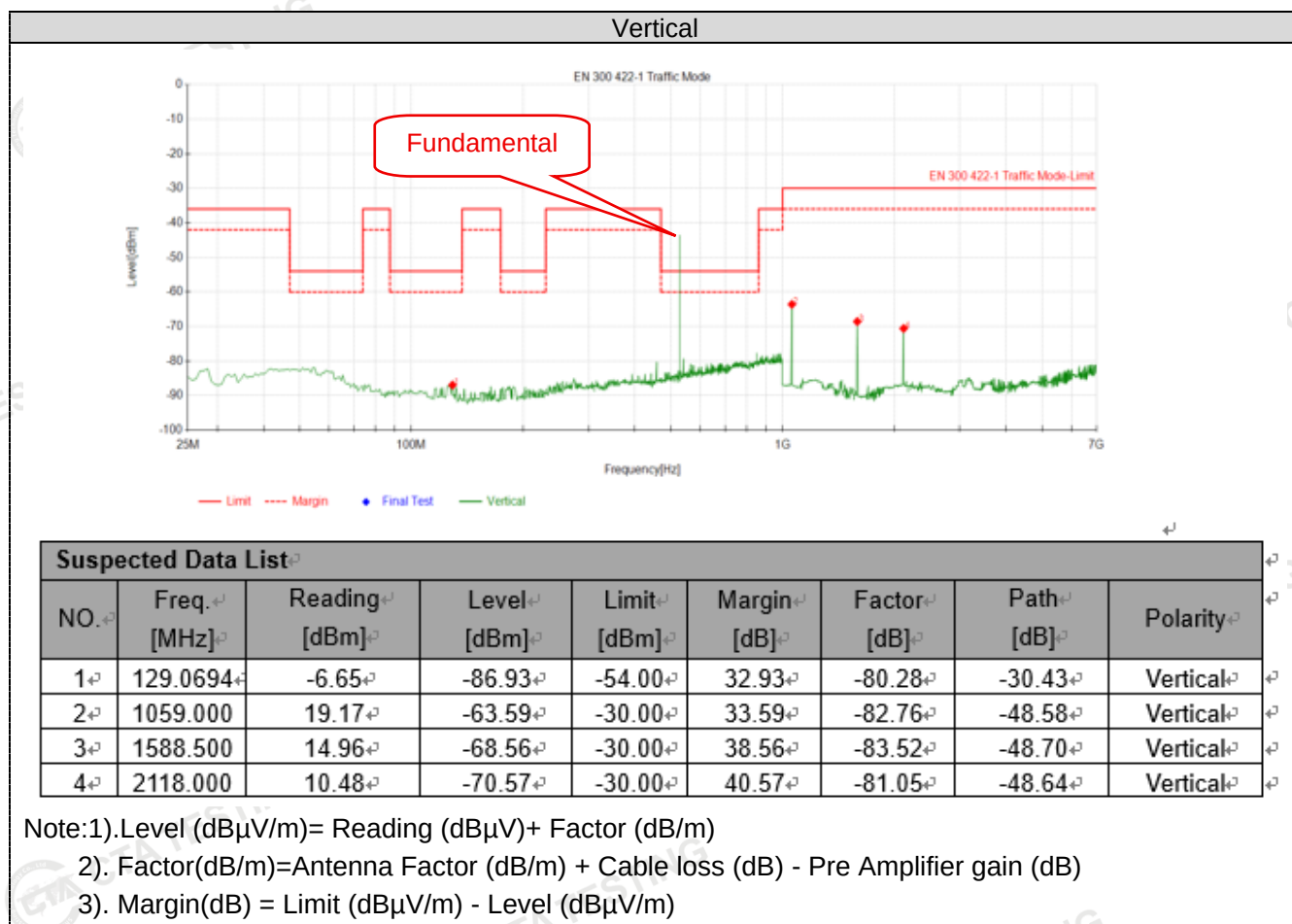
1. The EUT was placed on a turntable with 1.5m height.
2. The test distance between the receiving antenna and the EUT is 3 meter, while the receiving (test) antenna is kept at 1.5 meter height.
3. Set EUT in continuous transmitting with maximum output power at test frequency.
4. The table was rotated from 0 to 360 degree to search the highest radiated emission.
5. Repeat step 3 to 4 for each polarization and test channel to find the worst emission level.
6. The results obtained are compared to the limits in order to prove compliance with the requirement.

TEST RESULTS

We test Low, Mid, High channel and recorded the worst case at the High channel.

For 30MHz-6GHz





4.6 Frequency Stability

Limit

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

Test Procedure

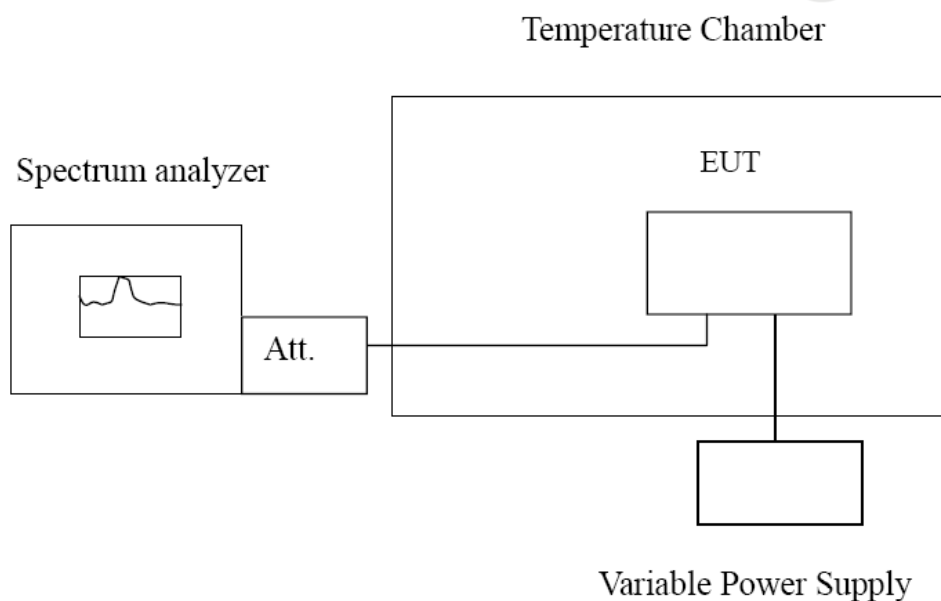
a) Frequency stability versus environmental temperature

1. Setup as Test Configuration for frequencies measured at ambient temperature if it is within 15°C to 25°C . Otherwise, an environmental chamber set for a temperature of 20°C shall be used.
2. Turn on EUT and set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 3 kHz, VBW to 10kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. Set the temperature of chamber to 50°C . Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
4. Repeat step 2 with a 10°C decreased per stage until the lowest temperature -20°C is measured, record all measurement frequencies.

b) Frequency stability versus input voltage

1. Setup as Test Configuration for frequencies measured at ambient temperature if it is within 15°C to 25°C . Otherwise, an environmental chamber set for a temperature of 20°C shall be used. Install new batteries in the EUT.
2. Set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 3kHz, VBW to 10kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. For non hand carried, battery operated device, supply the EUT primary voltage with 85 and 115 percent of the nominal value and record the frequency.

Test Configuration



Test Results

Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	510.0000	509.9936	-6400	-0.0013	0.0050	PASS
40		510.0000	509.9993	-700	-0.0001		
30		510.0000	510.0014	1400	0.0003		
20		510.0000	509.9936	-6400	-0.0013		
10		510.0000	509.9994	-600	-0.0001		
0		510.0000	510.0009	900	0.0002		
-10		510.0000	509.9964	-3600	-0.0007		
-20		510.0000	510.0011	1100	0.0002		
-30		510.0000	509.9977	-2300	-0.0005		
20	Maximum Voltage	510.0000	510.0006	600	0.0001		
-30	BEP	510.0000	510.0013	1300	0.0003		

Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	515.0000	515.0015	1500	0.0003	0.0050	PASS
40		515.0000	515.0024	2400	0.0005		
30		515.0000	515.0019	1900	0.0004		
20		515.0000	514.9908	-9200	-0.0018		
10		515.0000	515.0004	400	0.0001		
0		515.0000	514.9969	-3100	-0.0006		
-10		515.0000	514.9991	-900	-0.0002		
-20		515.0000	514.9997	-300	-0.0001		
-30		515.0000	515.0041	4100	0.0008		
20	Maximum Voltage	515.0000	514.9988	-1200	-0.0002		
-30	BEP	515.0000	515.0036	3600	0.0007		

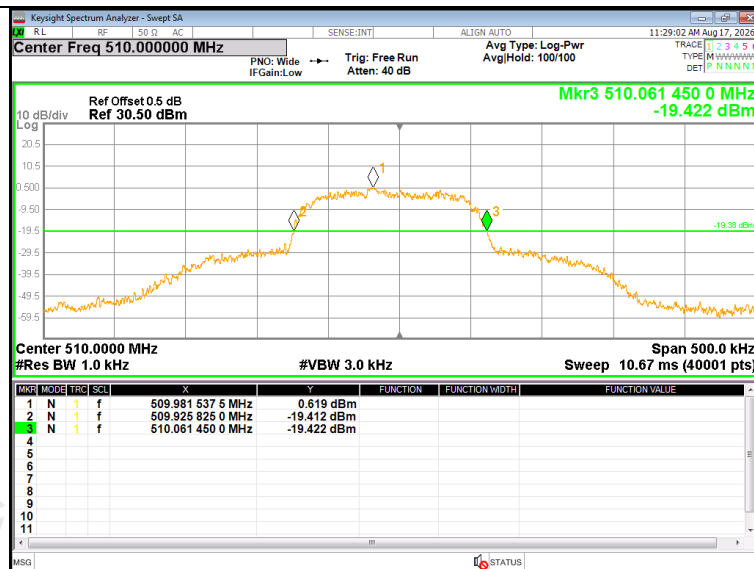
Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	519.5000	519.4995	-500	-0.0001	0.0050	PASS
40		519.5000	519.5031	3100	0.0006		
30		519.5000	519.4981	-1900	-0.0004		
20		519.5000	519.4931	-6900	-0.0013		
10		519.5000	519.4974	-2600	-0.0005		
0		519.5000	519.4999	-100	0.0000		
-10		519.5000	519.5014	1400	0.0003		
-20		519.5000	519.4984	-1600	-0.0003		
-30		519.5000	519.4986	-1400	-0.0003		
20	Maximum Voltage	519.5000	519.5015	1500	0.0003		
-30	BEP	519.5000	519.5016	1600	0.0003		

Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	520.0000	520.0015	1500	0.0003	0.0050	PASS
40		520.0000	519.9985	-1500	-0.0003		
30		520.0000	520.0014	1400	0.0003		
20		520.0000	519.9932	-6800	-0.0013		
10		520.0000	520.0025	2500	0.0005		
0		520.0000	520.0000	0	0.0000		
-10		520.0000	520.0014	1400	0.0003		
-20		520.0000	520.0015	1500	0.0003		
-30		520.0000	519.9988	-1200	-0.0002		
20	Maximum Voltage	520.0000	520.0037	3700	0.0007	0.0050	PASS
-30	BEP	520.0000	519.9984	-1600	-0.0003		

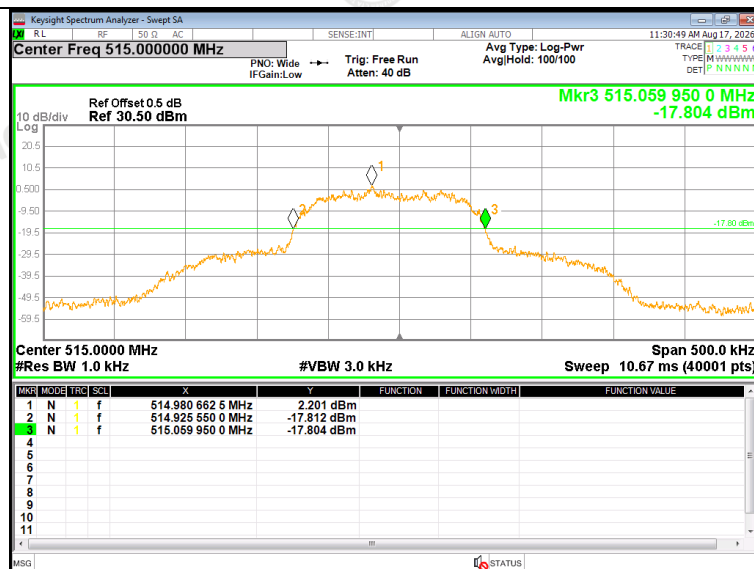
Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	525.0000	525.0021	2100	0.0004	0.0050	PASS
40		525.0000	525.0017	1700	0.0003		
30		525.0000	525.0014	1400	0.0003		
20		525.0000	524.9932	-6800	-0.0013		
10		525.0000	525.0003	300	0.0001		
0		525.0000	525.0001	100	0.0000		
-10		525.0000	524.9991	-900	-0.0002		
-20		525.0000	525.0009	900	0.0002		
-30		525.0000	525.0020	2000	0.0004		
20	Maximum Voltage	525.0000	524.9964	-3600	-0.0007	0.0050	PASS
-30	BEP	525.0000	524.9983	-1700	-0.0003		

Environment		Frequency Deviation measured with time Elapse(30 minutes)					
Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	Normal Voltage	529.5000	529.5029	2900	0.0005	0.0050	PASS
40		529.5000	529.5021	2100	0.0004		
30		529.5000	529.4965	-3500	-0.0007		
20		529.5000	529.4921	-7900	-0.0015		
10		529.5000	529.4964	-3600	-0.0007		
0		529.5000	529.5000	0	0.0000		
-10		529.5000	529.5033	3300	0.0006		
-20		529.5000	529.5023	2300	0.0004		
-30		529.5000	529.4979	-2100	-0.0004		
20	Maximum Voltage	529.5000	529.4986	-1400	-0.0003	0.0050	PASS
-30	BEP	529.5000	529.5032	3200	0.0006		

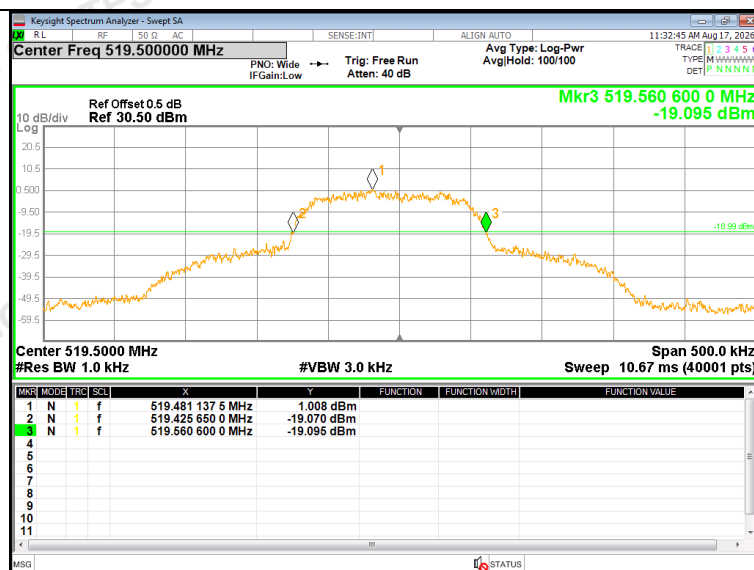
510 MHz



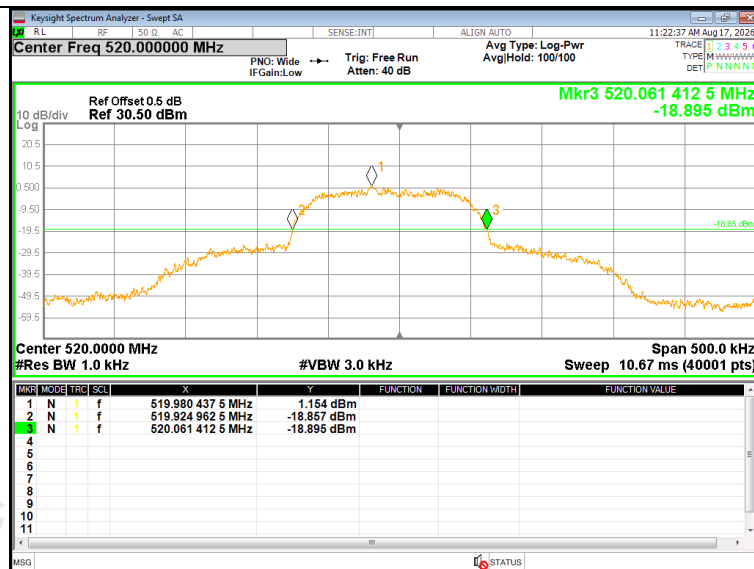
515 MHz



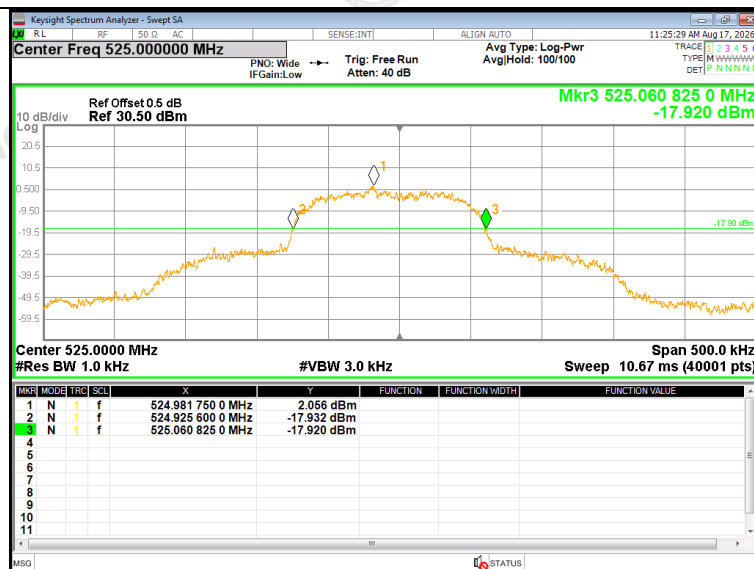
519.5 MHz



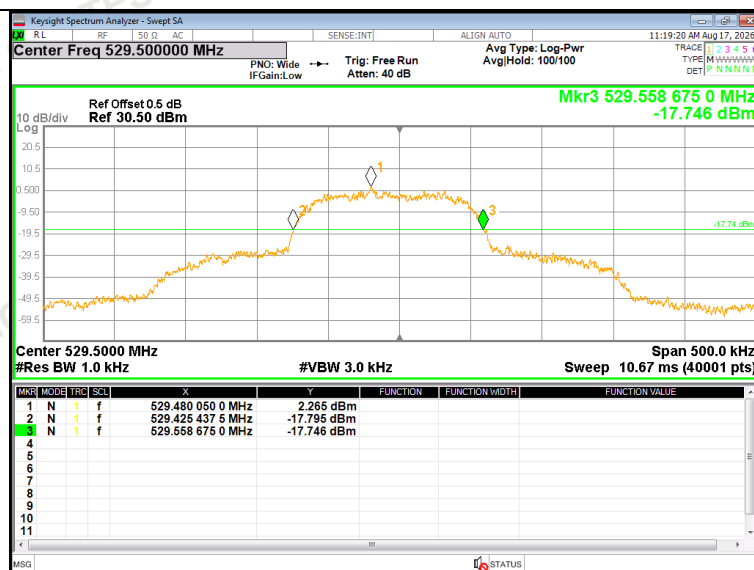
520 MHz



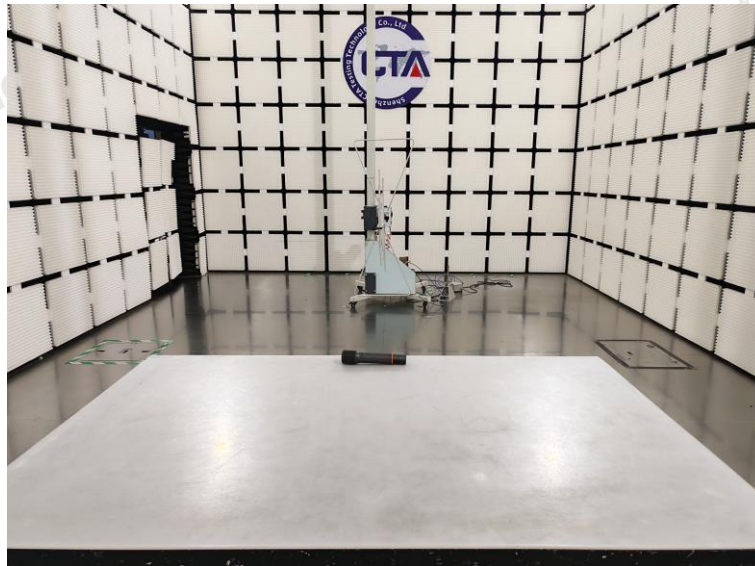
525 MHz



529.5 MHz



5 Test Setup Photos of the EUT



Shenzhen CTA Testing Technology Co., Ltd.

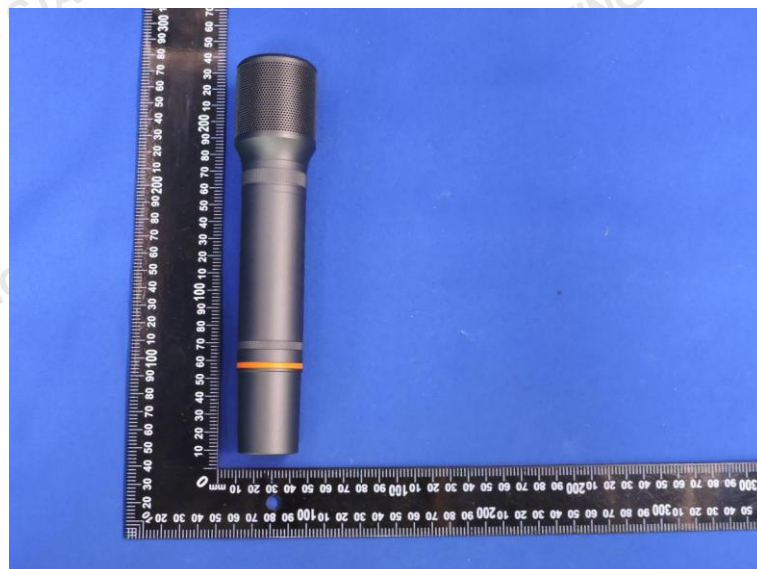
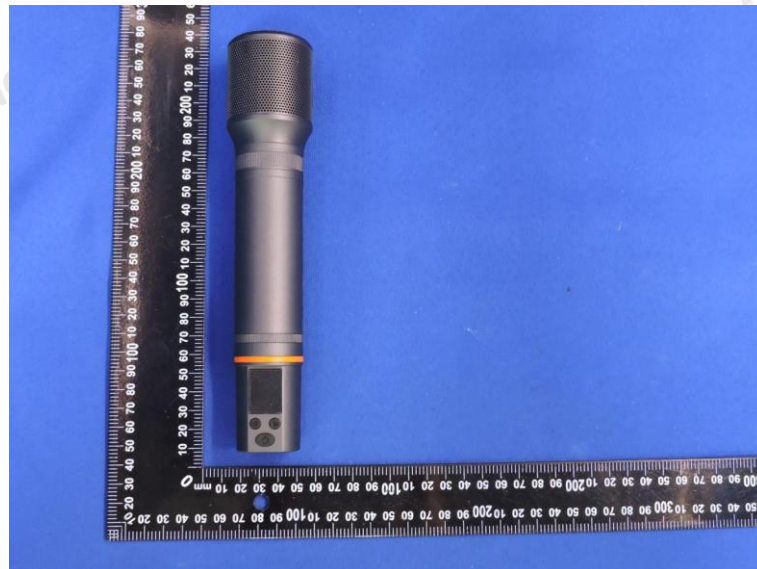
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

Tel:+86-755 2322 5875 E-mail:cta@cta-test.cn Web:http://www.cta-test.cn



6 Photos of the EUT

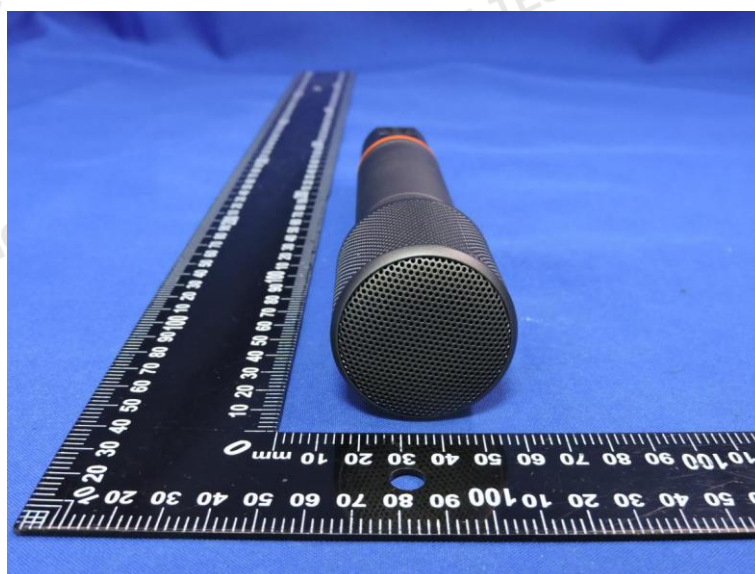
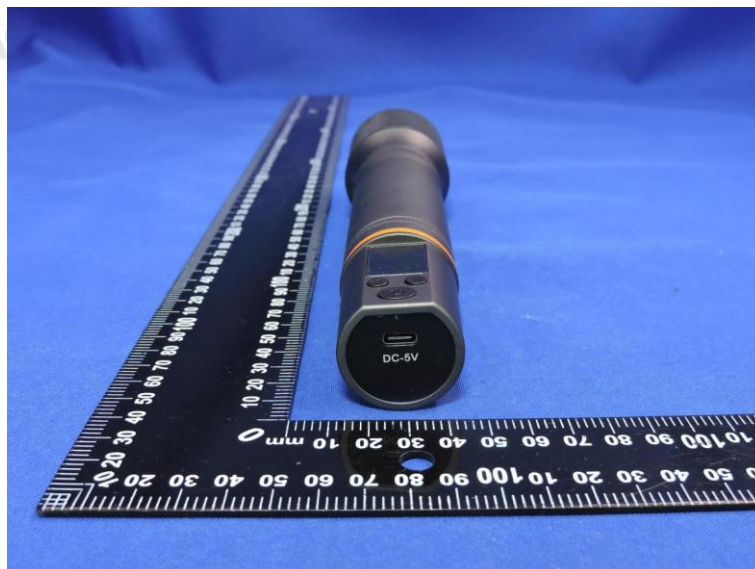
External Photos



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Tel: +86-755 2322 5875 E-mail: cta@cta-test.cn Web: <http://www.cta-test.cn>



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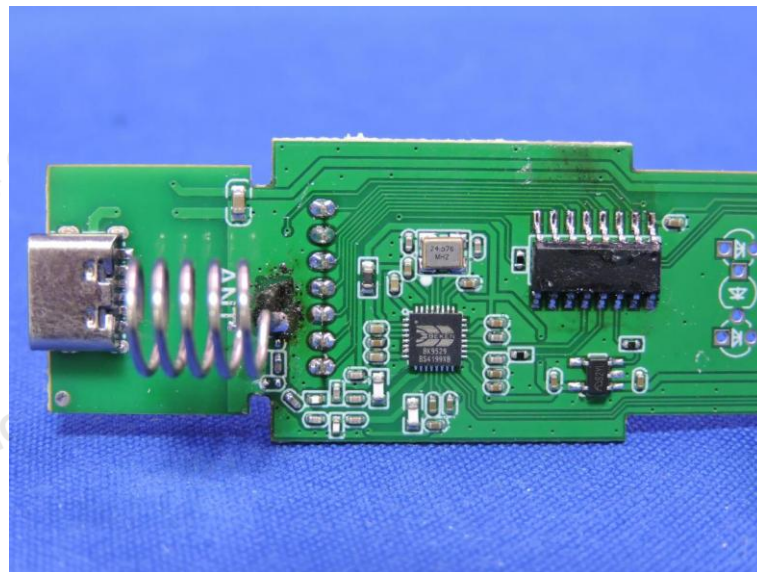
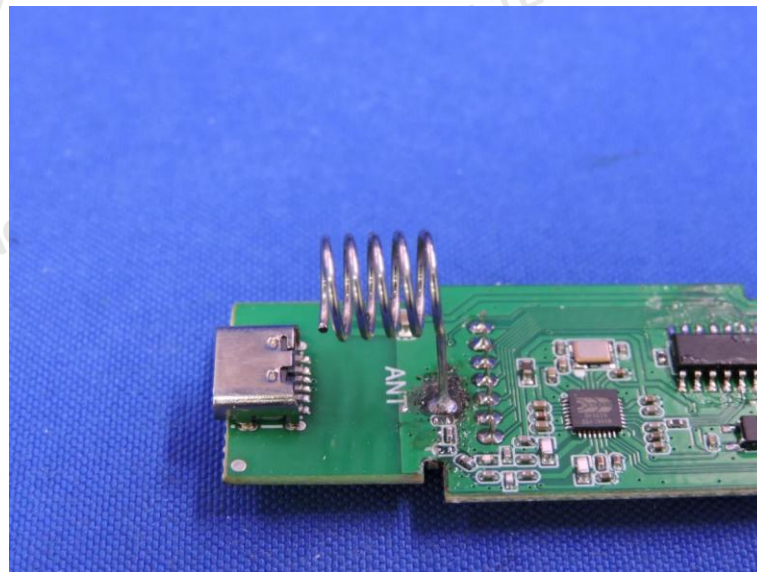
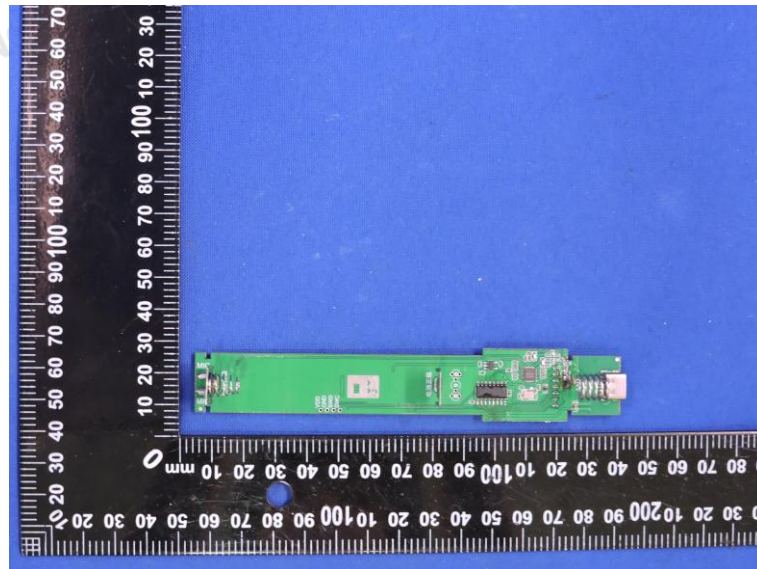
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

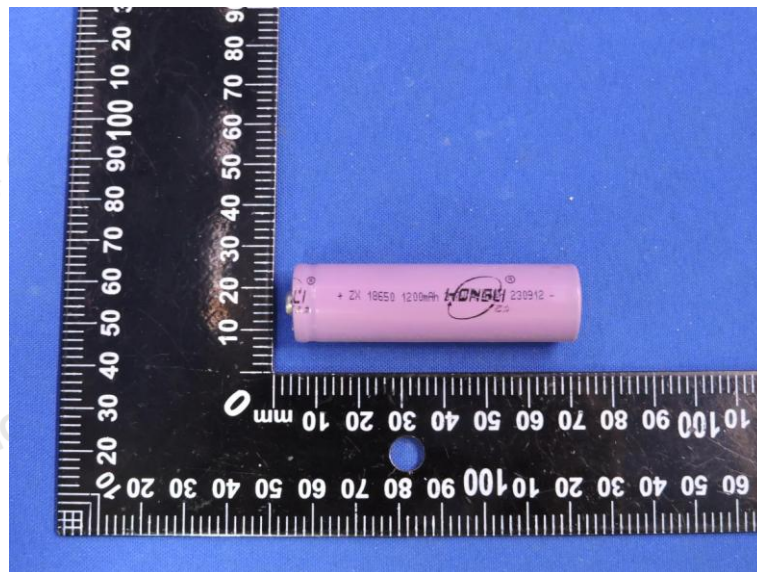
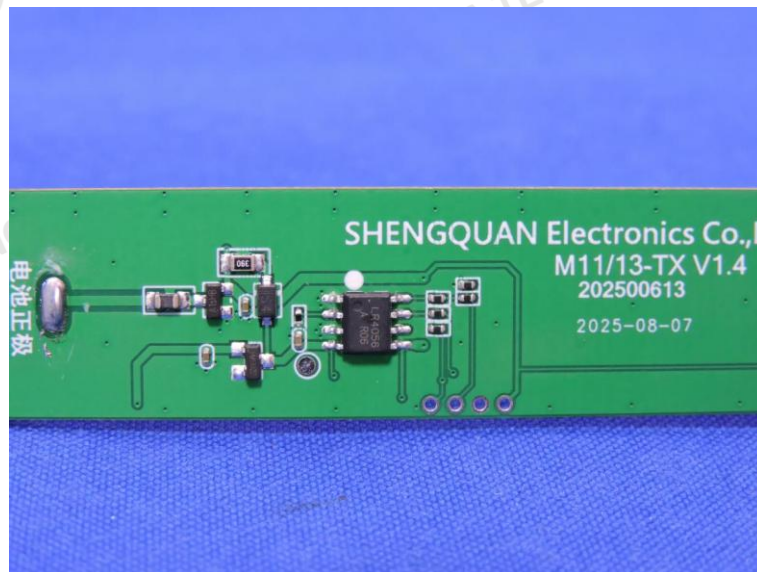
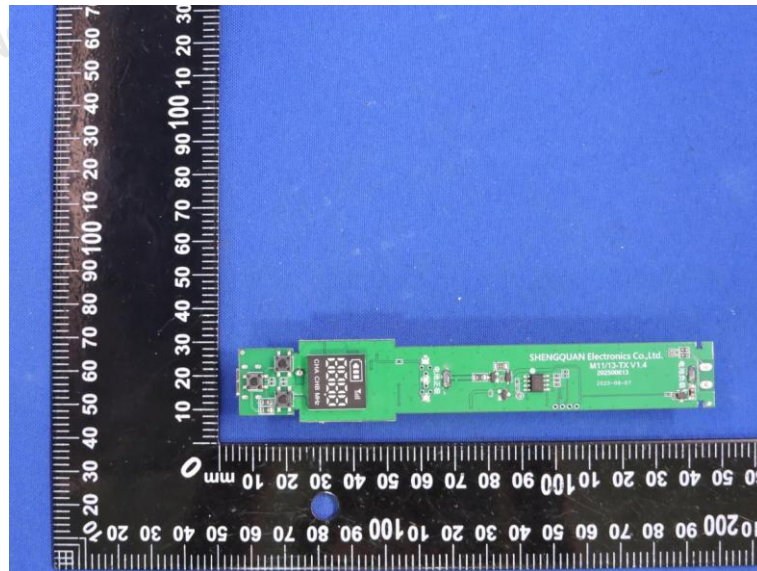
Tel: +86-755 2322 5875 E-mail: cta@cta-test.cn Web: <http://www.cta-test.cn>

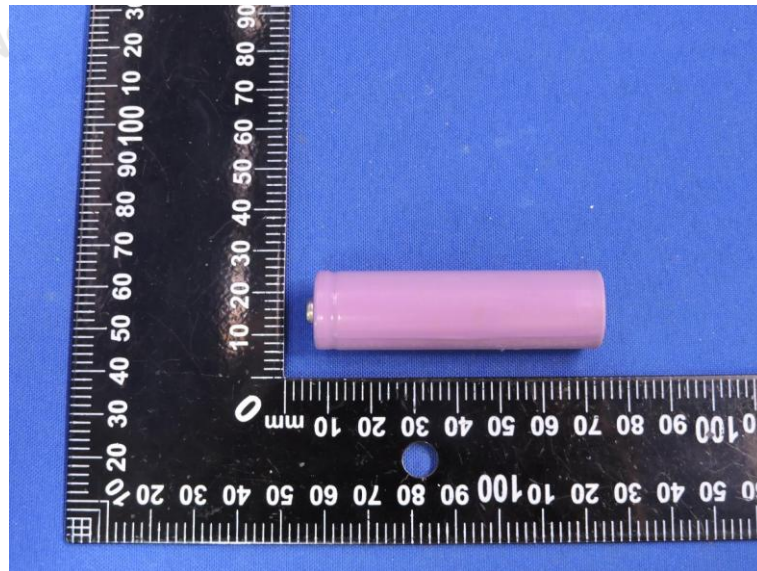


Internal Photos









***** End of Report *****