

**Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

FCC PART 15 SUBPART C TEST REPORT

Report Reference No.....: **GTS20190628001-1-2**

FCC ID.....: **2ATXN-BB1**

Compiled by
(position+printed name+signature)...: File administrators Jimmy Wang

Supervised by
(position+printed name+signature)...: Test Engineer Aaron Tan

Approved by
(position+printed name+signature)...: Manager Jason Hu

Date of issue.....: July 11, 2019

Representative Laboratory Name.: **Shenzhen Global Test Service Co., Ltd.**

Address.....: No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

Applicant's name.....: **Kenu, Inc.**

Address: 560 Alabama Street, San Francisco, CA94110, United States

Test specification

Standard: **FCC Rules and Regulations Part 15 Subpart C (Section 15.209), ANSI C63.10: 2013**

TRF Originator.....: Shenzhen Global Test Service Co.,Ltd.

Master TRF.....: Dated 2014-12

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Test item description: BingeBank

Trade Mark: KENU

Manufacturer: Shenzhen Senkaixin Technology Co. Ltd.

Model/Type reference.....: BB1-KK-10

Listed Models: BB1

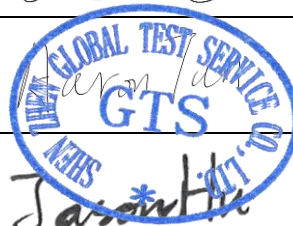
Modulation Type.....: ASK

Operation Frequency.....: From 110KHz~205KHz

Rating: DC 3.7V from battery charged by DC 5V

Result.....: **PASS**

Jimmy Wang



TEST REPORT

Test Report No. : GTS20190628001-1-2	July 11, 2019 Date of issue
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Equipment under Test : BingeBank

Model /Type : BB1-KK-10

Listed Models : BB1

Applicant : **Kenu, Inc.**

Address : 560 Alabama Street, San Francisco, CA94110, United States

Manufacturer : **Shenzhen Senkaixin Technology Co. Ltd.**

Address : Nine 101 Hongqiaotou Hengzhao Industrial Zone, Songgang Street,
Bao'an District, Shenzhen, 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 and Regulations Part 15 Subpart C \(Section 15.207\)](#): Conducted limits.

[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

Date of receipt of test sample	:	June 20, 2019
Testing commenced on	:	June 21, 2019
Testing concluded on	:	July 10, 2019

2.2 Product Description

Product Name:	BingeBank
Model/Type reference:	BB1-KK-10
Power supply:	DC 3.7V from battery charged by DC 5V
Adapter(Auxiliary test Provided by the laborator)	Mode:EP-TA20CBC Input:AC100-240V-50/60Hz, 0.5A Output:DC 5V,2A
Wireless Charger	
Antenna Type	Coil Antenna
Antenna Gain	1.0dBi
Operation frequency	110KHz~205KHz
Modulation Type	ASK

2.3 Equipment under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 3.7V from battery

Description of the test mode

Operation Frequency each of channel	
Channel	Frequency
1	153KHz

Operating Mode

The mode is used: Transmitting mode

2.4 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 165725

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

A2LA-Lab Cert. No.: 4758.01

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2024.

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

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

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 Global Test Service 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 GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(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

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.08	2018/09/20	2019/09/19
LISN	R&S	ESH2-Z5	893606/008	2018/09/20	2019/09/19
Bilog Antenna	Schwarzbeck	VULB9163	976	2018/09/20	2019/09/19
EMI Test Receiver	R&S	ESCI7	101102	2018/09/20	2019/09/19
Spectrum Analyzer	Agilent	N9020A	MY48010425	2018/09/20	2019/09/19
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2018/09/20	2019/09/19
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2018/09/20	2019/09/19
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	971	2018/09/20	2019/09/19
Amplifier	Schwarzbeck	BBV 9743	#202	2018/09/20	2019/09/19
Amplifier	EMCI	EMC051845B	980355	2018/09/20	2019/09/19
Temperature/Humidity Meter	Gangxing	CTH-608	02	2018/09/20	2019/09/19
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2018/09/20	2019/09/19
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2018/09/20	2019/09/19

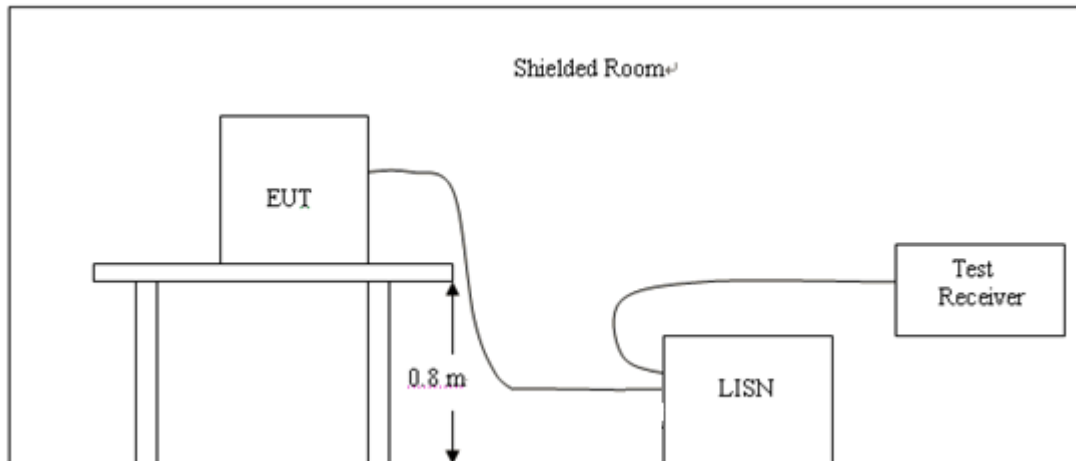
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2018/09/20	2019/09/19
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2018/09/20	2019/09/19
Data acquisition card	Agilent	U2531A	TW53323507	2018/09/20	2019/09/19
Power Sensor	Agilent	U2021XA	MY5365004	2018/09/20	2019/09/19
EMI Test Software	R&S	ES-K1	V1.7.1	2018/09/20	2019/09/19
EMI Test Software	JS Tonscend	JS32-RE	2.0.1.5	2018/09/20	2019/09/19
EMI Test Software	Audix	E3	2..1.1	2018/09/20	2019/09/19

Note: The Cal.Interval was one year.

4 TEST CONDITIONS AND RESULTS

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.

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

- 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..

Power supply:

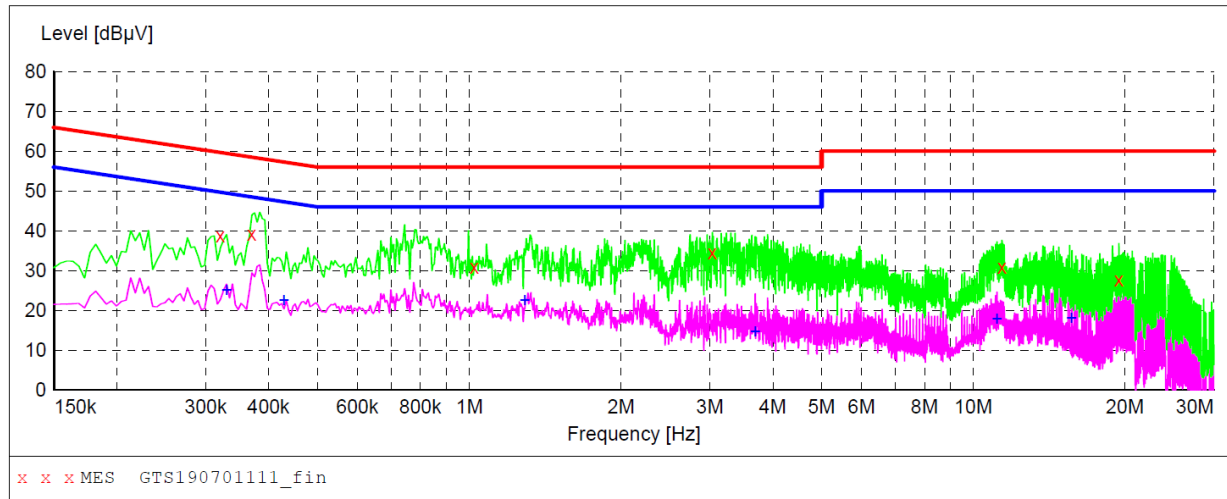
DC 5V from Adapter
AC 120V/60Hz

Polarization

L

SCAN TABLE: "Voltage (9K-30M) FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "GTS190701111_fin"**

7/1/2019 4:37PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.321000	38.70	9.9	60	21.0	QP	L1	GND
0.370500	39.10	9.9	59	19.4	QP	L1	GND
1.023000	30.90	9.6	56	25.1	QP	L1	GND
3.034500	34.50	9.4	56	21.5	QP	L1	GND
11.400000	30.90	8.7	60	29.1	QP	L1	GND
19.432500	27.70	7.1	60	32.3	QP	L1	GND

MEASUREMENT RESULT: "GTS190701111_fin2"

7/1/2019 4:37PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.330000	25.10	9.9	50	24.4	AV	L1	GND
0.429000	22.50	9.8	47	24.8	AV	L1	GND
1.288500	22.60	9.6	46	23.4	AV	L1	GND
3.691500	14.70	9.4	46	31.3	AV	L1	GND
11.125500	17.90	8.7	50	32.1	AV	L1	GND
15.639000	18.00	8.0	50	32.0	AV	L1	GND

Power supply:

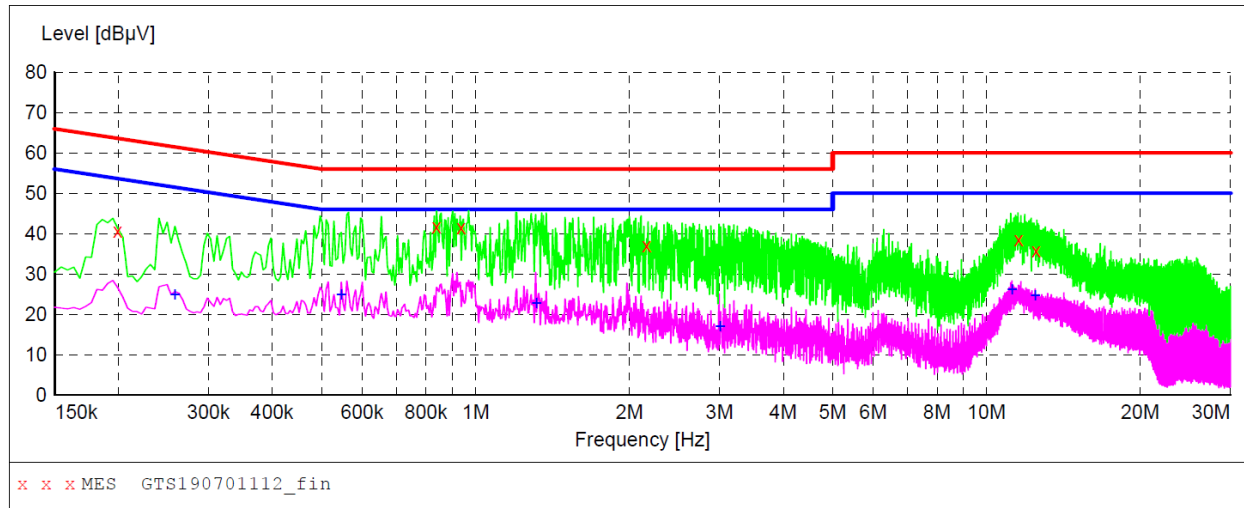
DC 5V from Adapter
AC 120V/60Hz

Polarization

N

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "GTS190701112_fin"**

7/1/2019 4:41PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.199500	40.70	10.0	64	22.9	QP	N	GND
0.838500	41.80	9.6	56	14.2	QP	N	GND
0.937500	41.60	9.6	56	14.4	QP	N	GND
2.161500	37.10	9.5	56	18.9	QP	N	GND
11.557500	38.60	8.6	60	21.4	QP	N	GND
12.502500	35.70	8.5	60	24.3	QP	N	GND

MEASUREMENT RESULT: "GTS190701112_fin2"

7/1/2019 4:41PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.258000	25.00	9.9	52	26.5	AV	N	GND
0.546000	24.90	9.8	46	21.1	AV	N	GND
1.315500	22.70	9.6	46	23.3	AV	N	GND
3.007500	17.10	9.5	46	28.9	AV	N	GND
11.211000	26.30	8.7	50	23.7	AV	N	GND
12.457500	24.70	8.5	50	25.3	AV	N	GND

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.

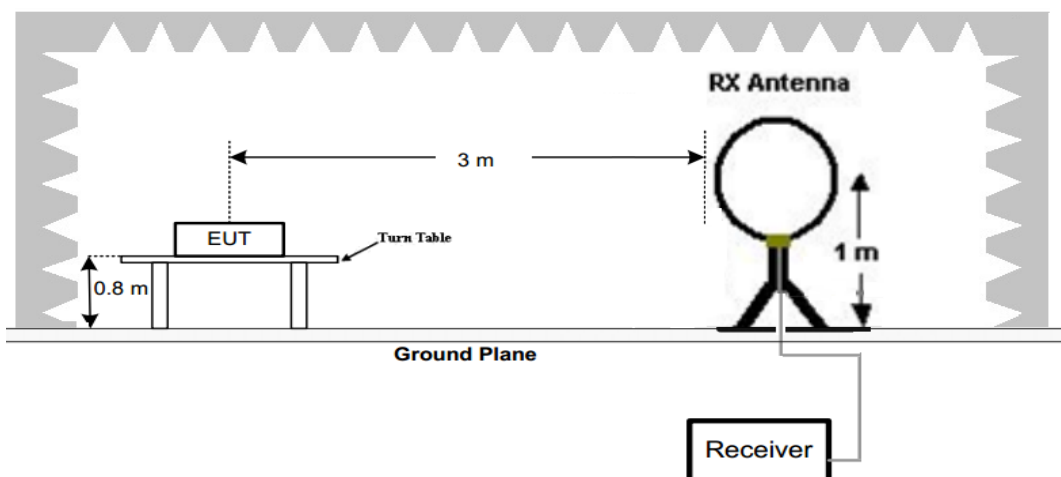
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

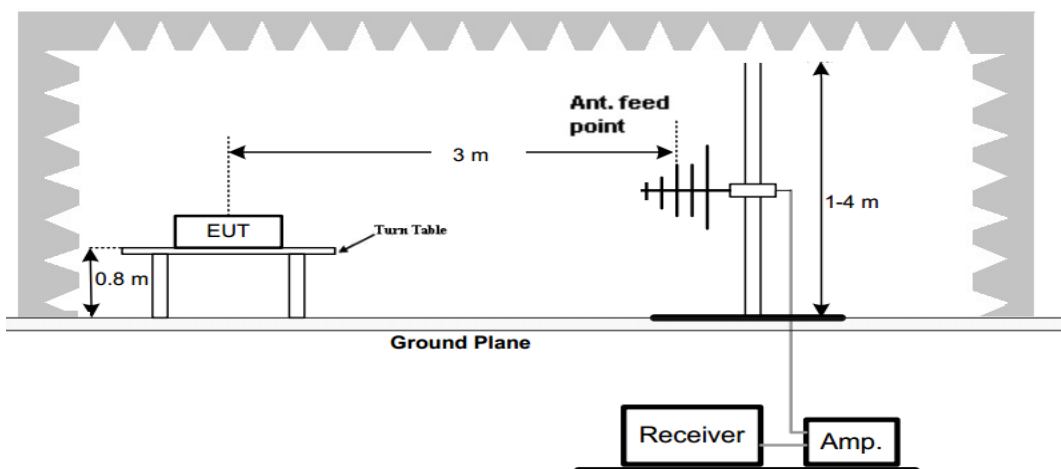
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz})) + 40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz})) + 40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

1. Radiated Emission Test Set-Up, Frequency Below 30MHz



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



Test Procedure

- 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 turntable from 0° to 360° 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.
- Radiated emission test frequency band from 9KHz to 1000MHz.
- The distance between test antenna and EUT as following table states:

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

- 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

TEST RESULTS

For 9 KHz-30MHz

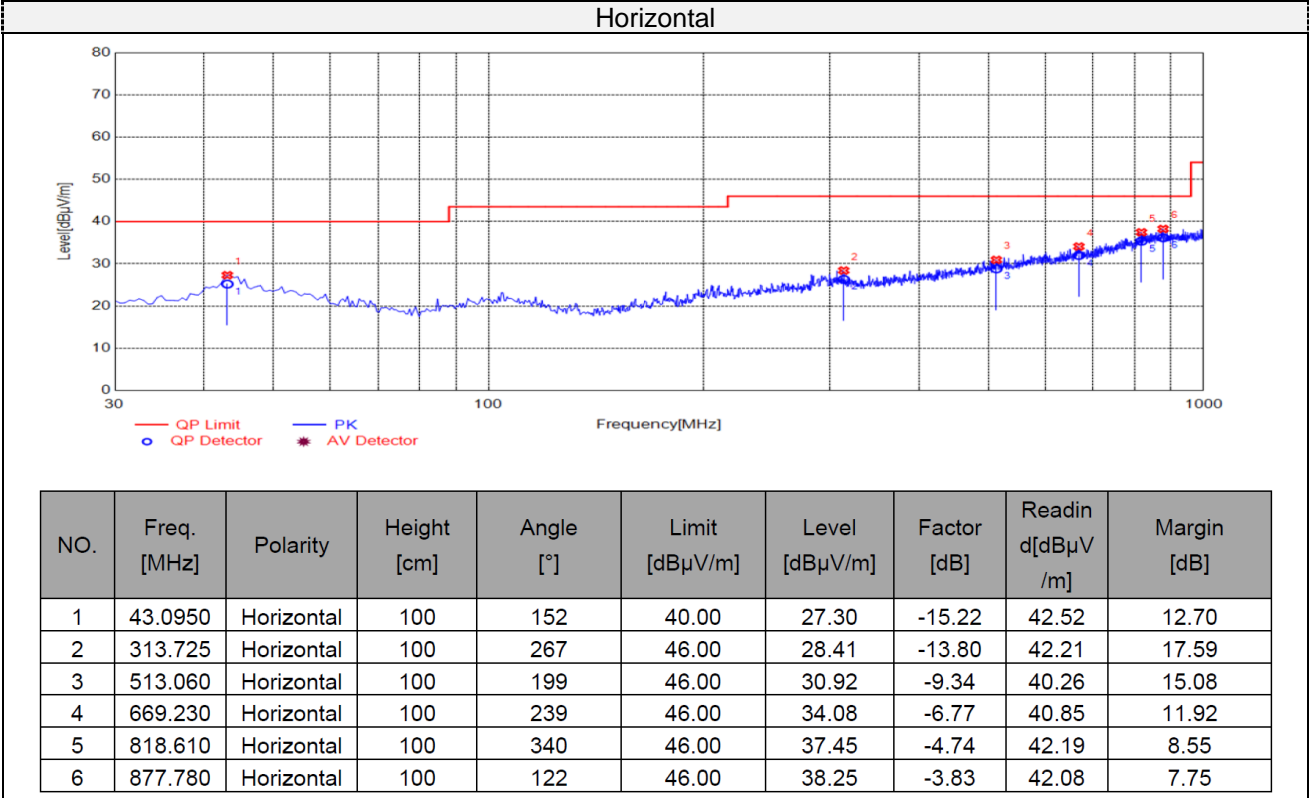
WORST-CASE RADIATED EMISSION BELOW 30 MHz

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)	
0.153(F)	56.60	Loop	23.64	0.01	80.25	103.91	23.66	PK
0.153(F)	46.57	Loop	23.64	0.01	70.22	83.91	13.69	AV
0.110	38.97	Loop	23.55	0.01	62.53	106.78	44.25	PK
0.110	29.85	Loop	23.55	0.01	53.41	86.78	33.37	AV
0.554	25.46	Loop	25.07	-0.17	50.36	72.73	22.37	QP
1.675	16.24	Loop	27.12	-0.25	43.11	63.12	20.01	QP
3.254	18.00	Loop	23.91	-0.24	41.67	69.54	27.87	QP
--	--	--	--	--	--	--	--	--

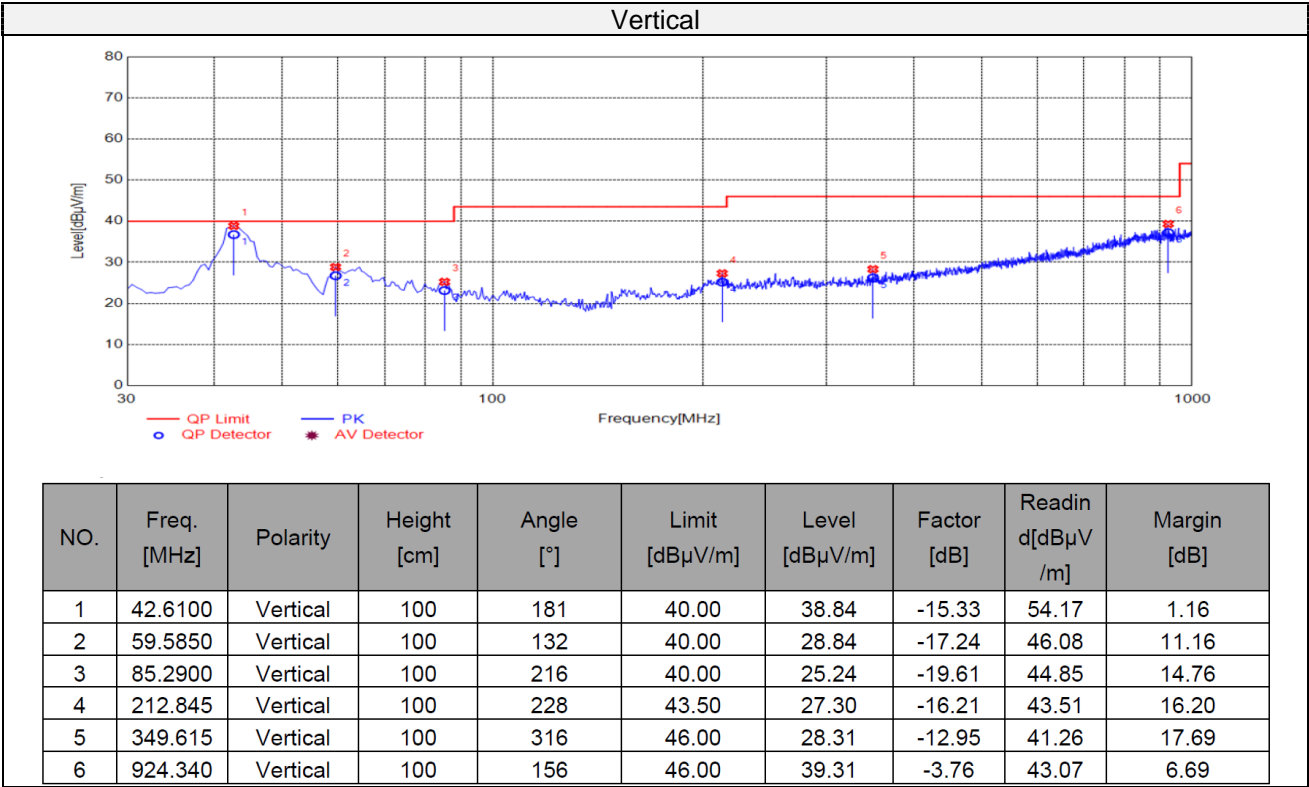
Remark:

- Data of measurement within this frequency range shown "-- in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits and not recorded.
- The test limit distance is 3m limit.
- PK means Peak Value, QP means Quasi Peak Value, AV means Average Value.
- F means Fundamental Frequency.
- Emission level (dBuV/m) = Reading + Antenna Factor + Cable Loss.
- Margin value = Limit value- Emission level.

For 30MHz-1GHz



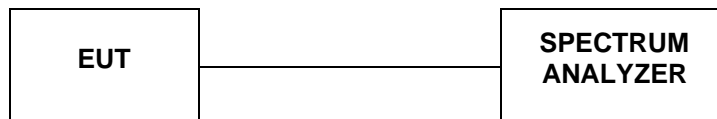
NO.	Freq. [MHz]	Polarity	Height [cm]	Angle [°]	Limit [dBμV/m]	Level [dBμV/m]	Factor [dB]	Readin d [dBμV /m]	Margin [dB]
1	43.0950	Horizontal	100	152	40.00	27.30	-15.22	42.52	12.70
2	313.725	Horizontal	100	267	46.00	28.41	-13.80	42.21	17.59
3	513.060	Horizontal	100	199	46.00	30.92	-9.34	40.26	15.08
4	669.230	Horizontal	100	239	46.00	34.08	-6.77	40.85	11.92
5	818.610	Horizontal	100	340	46.00	37.45	-4.74	42.19	8.55
6	877.780	Horizontal	100	122	46.00	38.25	-3.83	42.08	7.75



NO.	Freq. [MHz]	Polarity	Height [cm]	Angle [°]	Limit [dBμV/m]	Level [dBμV/m]	Factor [dB]	Readin d[dBμV /m]	Margin [dB]
1	42.6100	Vertical	100	181	40.00	38.84	-15.33	54.17	1.16
2	59.5850	Vertical	100	132	40.00	28.84	-17.24	46.08	11.16
3	85.2900	Vertical	100	216	40.00	25.24	-19.61	44.85	14.76
4	212.845	Vertical	100	228	43.50	27.30	-16.21	43.51	16.20
5	349.615	Vertical	100	316	46.00	28.31	-12.95	41.26	17.69
6	924.340	Vertical	100	156	46.00	39.31	-3.76	43.07	6.69

4.3 Occupied Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

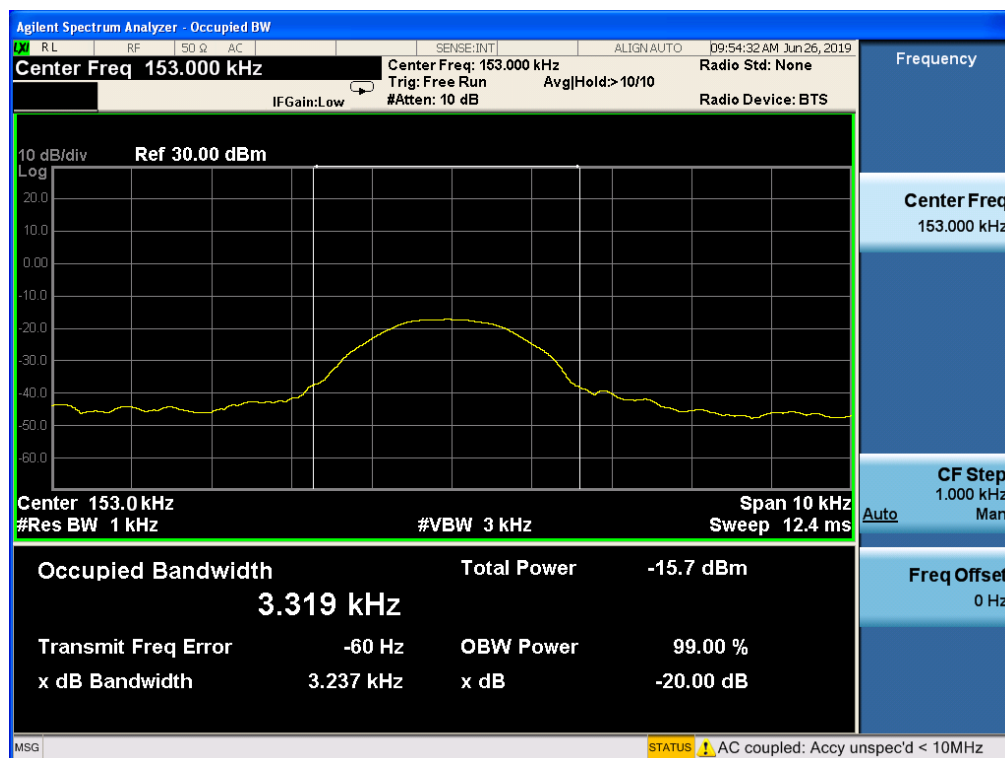
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule 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 demonstrated 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)	99% OBW (KHz)	Conclusion
Tx Mode	153	3.237	3.319	PASS



4.4 Antenna Requirement

Standard Applicable

Standard Applicable

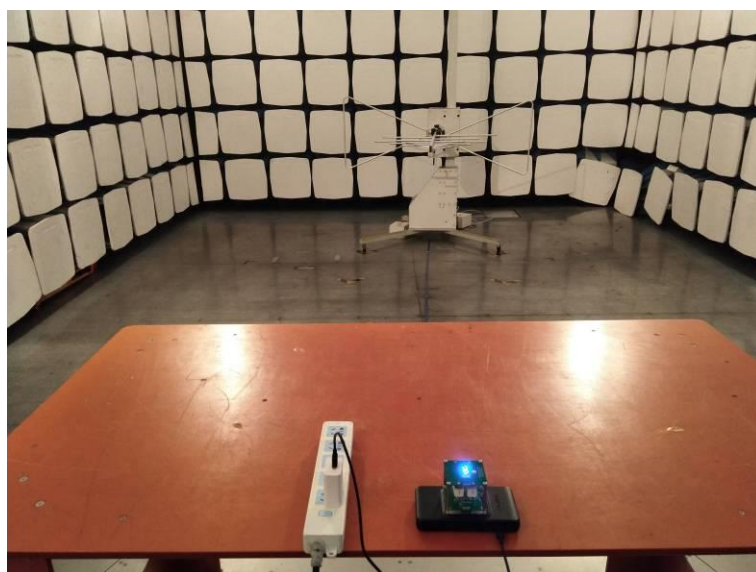
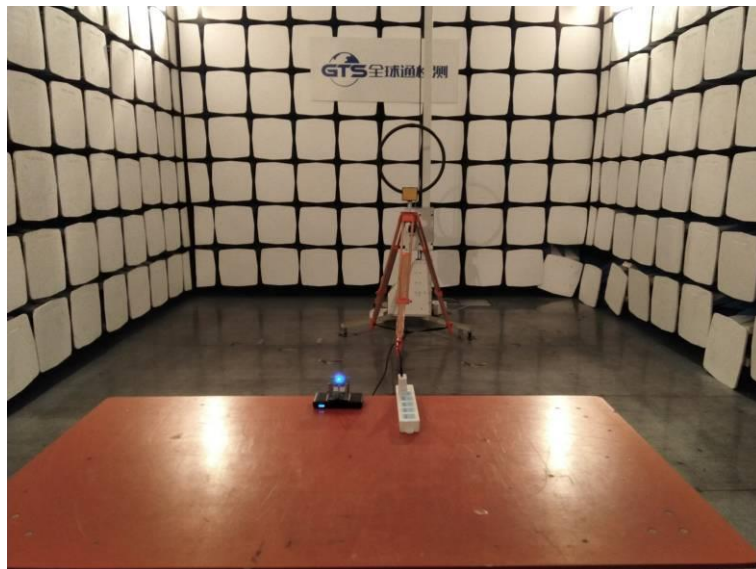
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 1dBi.

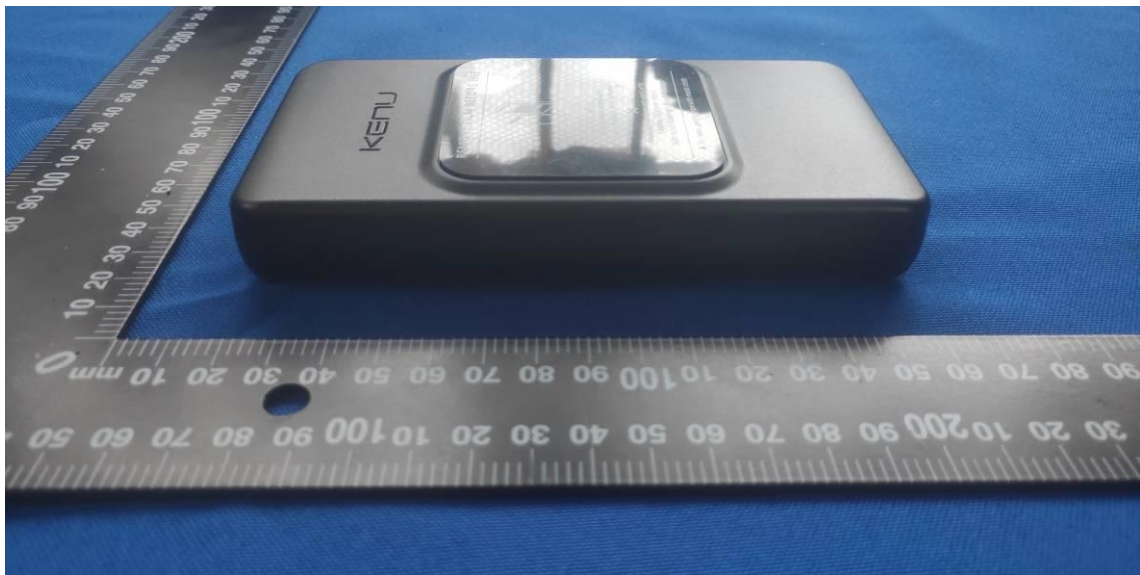
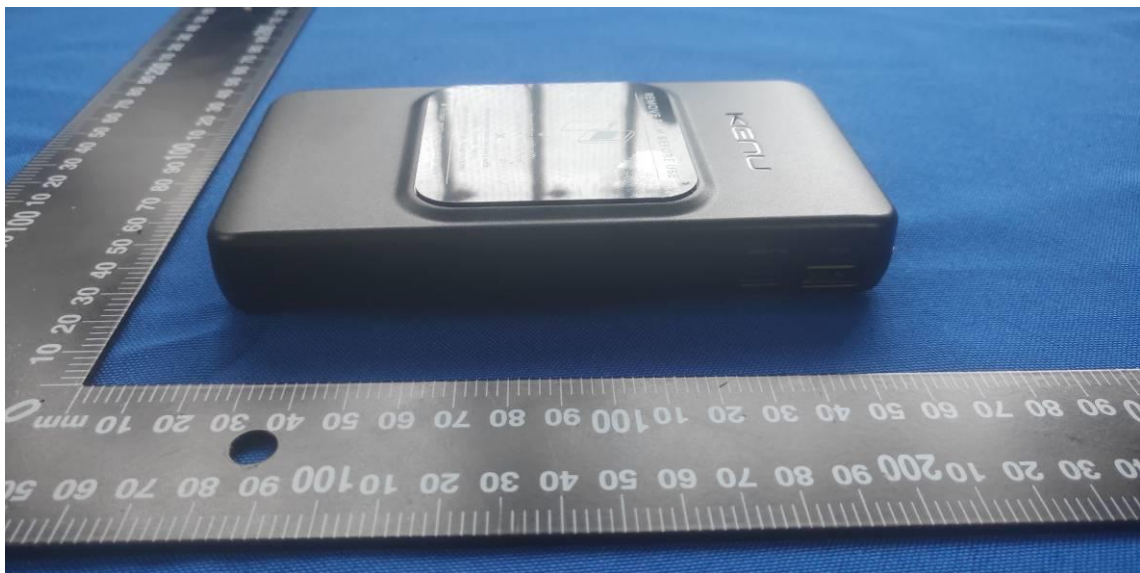
5 Test Setup Photos of the EUT



6 PHOTOS OF THE EUT

External Photos of EUT







Internal Photos of EUT

