

APPLICATION CERTIFICATION FCC Part 15C & RSS-210

On Behalf of
Country Mate Technology Ltd

Wireless Stereo Earbuds
Model No.: NS-CAHBTAP, NS-CAHBTAP-C

FCC ID: MV3-CAHBTAPL
IC: 9029A-CAHBTAPL

Prepared for : Country Mate Technology Ltd
Address : 5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln.,
H.K.

Prepared by : Shenzhen Accurate Technology Co., Ltd.
Address : 1/F., Building A, Changyuan New Material Port, Science &
Industry Park, Nanshan District, Shenzhen, Guangdong, P.R.
China.

Tel: (0755) 26503290
Fax: (0755) 26503396

Report No. : ATE20180330
Date of Test : Jan. 29--Mar. 6, 2018
Date of Report : Mar. 9, 2018

TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	4
1.1. Description of Device (EUT).....	4
1.2. Accessory and Auxiliary Equipment	5
1.3. Description of Test Facility	5
1.4. Measurement Uncertainty	5
2. MEASURING DEVICE AND TEST EQUIPMENT	6
3. TEST PROCEDURES AND RESULTS	7
4. 20DB BANDWIDTH TEST.....	8
4.1. Block Diagram of Test Setup.....	8
4.2. The Requirement For Section 15.215(c).....	8
4.3. Test Procedure	8
4.4. Test Result	9
5. 99% OCCUPIED BANDWIDTH	10
5.1. Block Diagram of Test Setup.....	10
5.2. The Requirement for RSS-Gen Clause 6.6	10
5.3. Test Procedure	10
5.4. Measurement Result	11
6. RADIATED EMISSION TEST	12
6.1. Block Diagram of Test Setup.....	12
6.2. The Limit For Section 15.215(b)	13
6.3. Restricted bands of operation	13
6.4. Configuration of EUT on Measurement	14
6.5. Test Procedure	14
6.6. Data Sample.....	15
6.7. The Field Strength of Radiation Emission Measurement Results	15
7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207 & RSS-GEN 8.8	21
7.1. Block Diagram of Test Setup.....	21
7.2. Test System Setup.....	21
7.3. Power Line Conducted Emission Measurement Limits.....	22
7.4. Configuration of EUT on Measurement	22
7.5. Operating Condition of EUT	22
7.6. Test Procedure	22
7.7. Data Sample.....	23
7.8. Power Line Conducted Emission Measurement Results	23
8. ANTENNA REQUIREMENT.....	27
8.1. The Requirement	27
8.2. Antenna Construction	27

Test Report Certification

Applicant : Country Mate Technology Ltd
 Address : 5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln., H.K.
 Manufacturer : Country Mate Technology Ltd
 Address : 5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln., H.K.
 Product : Wireless Stereo Earbuds
 Model No. : NS-CAHBTAP, NS-CAHBTAP-C

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.215

ANSI C63.10: 2013

RSS-210 Issue 9 August 2016

RSS-Gen Issue 4 November 2014

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.215 and RSS-210 limits. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : Jan. 29--Mar. 6, 2018

Date of Report: Mar. 9, 2018

Prepared by :


 (Star Yang, Engineer)

Approved &
 Authorized Signer :


 (Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Wireless Stereo Earbuds
Model Number	:	NS-CAHBTAP, NS-CAHBTAP-C (Note: Above series are identical in schematic, structure and critical components, Only the model name is different from the market requirement, NS-CAHBTAP For the FCC reports, NS-CAHBTAP-C For the IC reports.)
HVIN	:	L
Frequency Range	:	10.579MHz
Number of Channels	:	1
Antenna Gain(Max)	:	0dBi
Antenna type	:	Inductive coil antenna
Modulation mode	:	D8PSK PTCM
Trade Name	:	INSIGNIA
Rating	:	DC 3.7V (Powered by Lithium battery) or DC 5V (Powered by USB port)
Applicant	:	Country Mate Technology Ltd
Address	:	5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln., H.K.
Manufacturer	:	Country Mate Technology Ltd
Address	:	5/F., Block E, Hing Yip Centre 31 Hing Yip St., Kwun Tong, Kln., H.K.
Date of sample received	:	Feb. 24, 2018
Date of Test	:	Jan. 29--Mar. 6, 2018

1.2. Accessory and Auxiliary Equipment

Notebook PC: Manufacturer: Lenovo
M/N: ThinkPad X240
S/N:n.a

1.3. Description of Test Facility

EMC Lab	: Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358
	Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2
	Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193
	Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	: Shenzhen Accurate Technology Co., Ltd.
Site Location	: 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.4.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

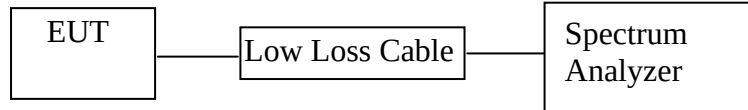
Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 06, 2018	Jan. 05, 2019
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 06, 2018	Jan. 05, 2019
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 06, 2018	Jan. 05, 2019
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 06, 2018	Jan. 05, 2019
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 06, 2018	Jan. 05, 2019
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 12, 2018	Jan. 11, 2019
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 12, 2018	Jan. 11, 2019
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 12, 2018	Jan. 11, 2019
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 12, 2018	Jan. 11, 2019
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 06, 2018	Jan. 05, 2019
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 06, 2018	Jan. 05, 2019
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 06, 2018	Jan. 05, 2019
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 06, 2018	Jan. 05, 2019
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 06, 2018	Jan. 05, 2019

3. TEST PROCEDURES AND RESULTS

FCC & IC Rules	Description of Test	Result
Section 15.215(c)	20dB Bandwidth Test	Compliant
RSS-Gen Section 6.6	99% Occupied Bandwidth	Compliant
Section 15.209 Rss 210 Section 3.1&4.4 RSS-Gen 6.13	Radiated Emission Test	Compliant
Section 15.207 RSS-Gen Section 8.8	AC Power Line Conducted Emission Test	Compliant
Section 15.203 RSS-Gen 8.3	Antenna Requirement	Compliant

4. 20DB BANDWIDTH TEST

4.1. Block Diagram of Test Setup



(EUT: Wireless Stereo Earbuds)

4.2. The Requirement For Section 15.215(c)

Section 15.215(c): 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 the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation

4.3. Test Procedure

4.3.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

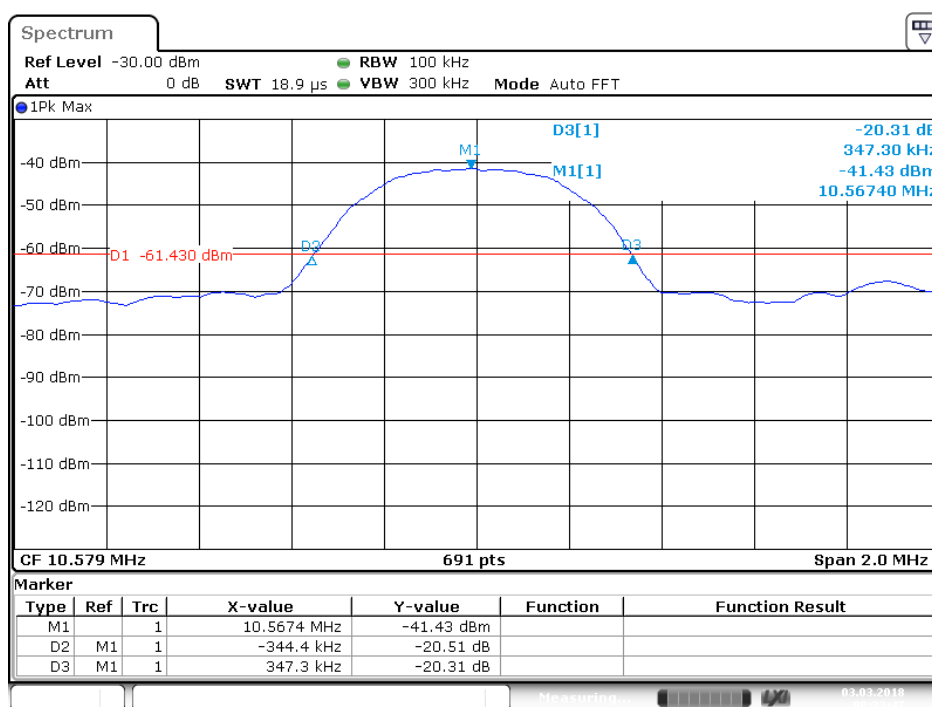
4.3.2. The RBW should be 1%~5% of OBW.

4.3.3. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.4. Test Result

Frequency (MHz)	20dB Bandwidth (MHz)
10.579	0.692

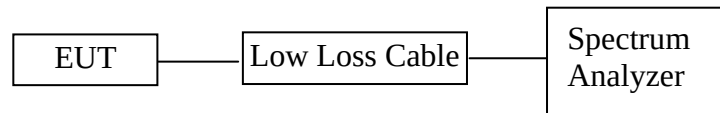
The spectrum analyzer plots are attached as below.



Date: 3.MAR.2018 08:33:47

5. 99% OCCUPIED BANDWIDTH

5.1. Block Diagram of Test Setup



(EUT: Wireless Stereo Earbuds)

5.2. The Requirement for RSS-Gen Clause 6.6

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth. When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth

5.3. Test Procedure

5.3.1. Place the EUT on the table and set it in transmitting mode.

5.3.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

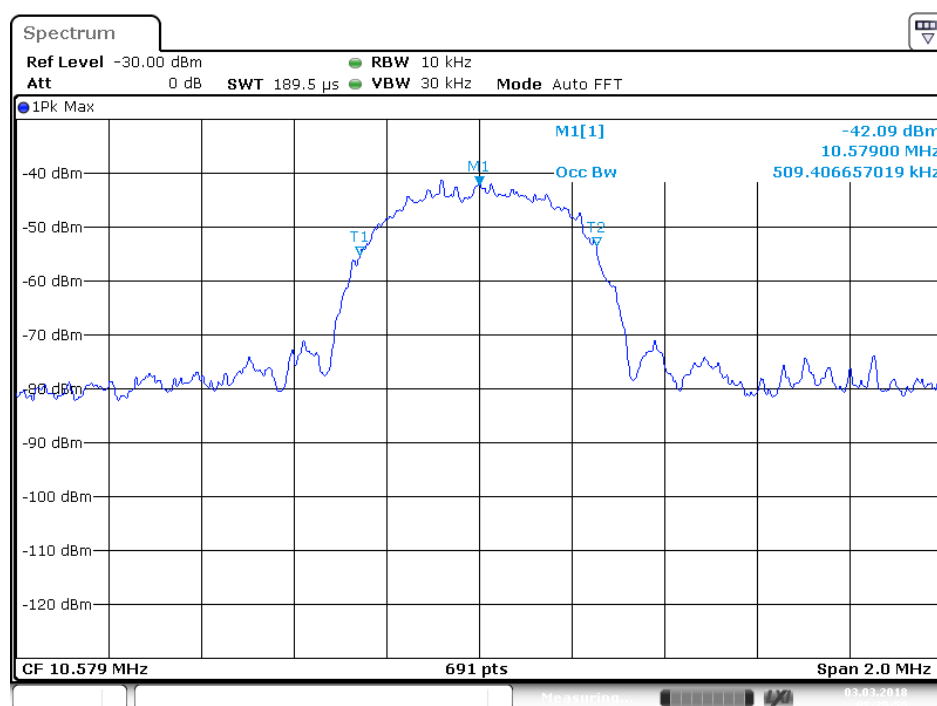
5.3.3. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW. Set RBW of spectrum analyzer to 10kHz and VBW to 30kHz, Detector function=peak, Trace=max hold, Sweep=auto.

5.3.4. Set the measured frequency and test 99% bandwidth with spectrum analyzer.

5.4.Measurement Result

Frequency (MHz)	99% Bandwidth (MHz)
10.579	0.509

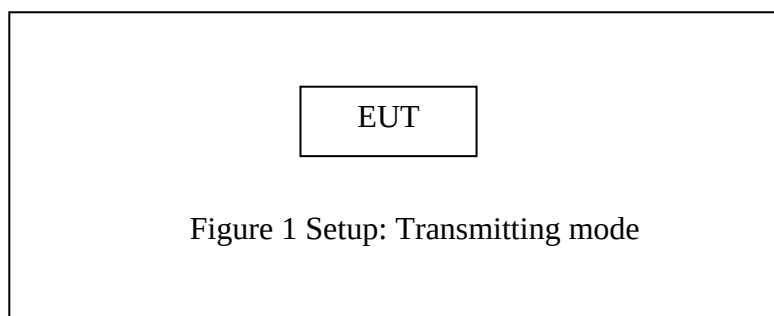
The spectrum analyzer plots are attached as below.



6. RADIATED EMISSION TEST

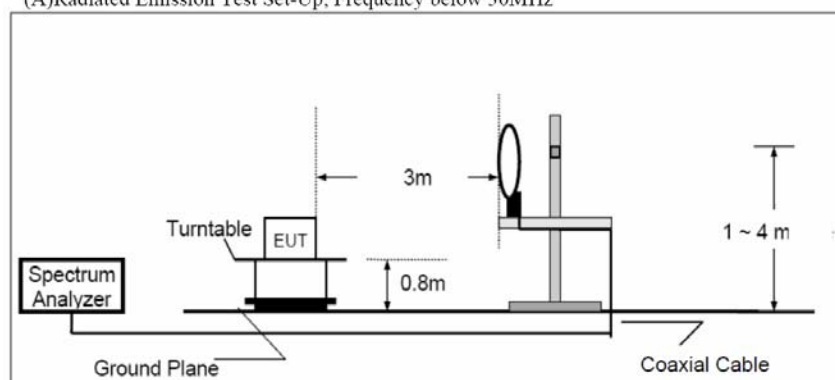
6.1. Block Diagram of Test Setup

6.1.1. Block diagram of connection between the EUT and peripherals

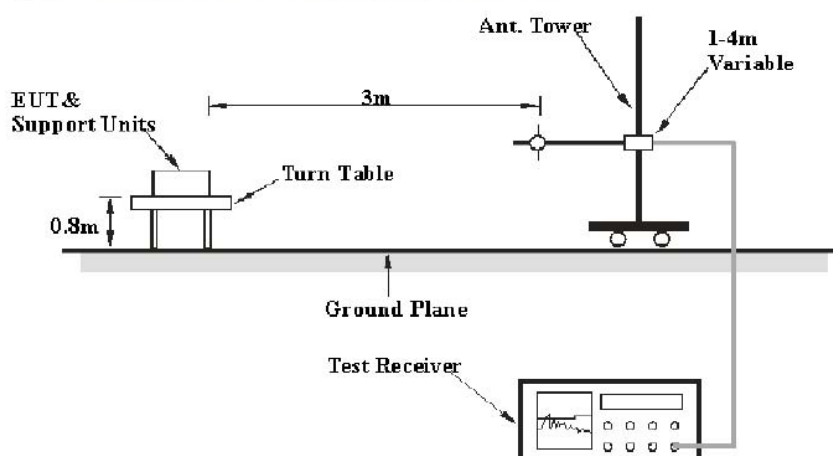


6.1.2. Semi-Anechoic Chamber Test Setup Diagram

(A) Radiated Emission Test Set-Up, Frequency below 30MHz



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



6.2.The Limit For Section 15.215(b)

Section 15.215(b): In most cases, unwanted emissions outside of the frequency bands shown in these alternative provisions must be attenuated to the emission limits shown in § 15.209. In no case shall the level of the unwanted emissions from an intentional radiator operating under these additional provisions exceed the field strength of the fundamental emission

6.3.Restricted bands of operation

6.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

6.4. Configuration of EUT on Measurement

The equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

6.6.Data Sample

Frequency (MHz)	Reading (dB μ v)	Factor (dB/m)	Result (dB μ v/m)	Limit (dB μ v/m)	Margin (dB)	Remark
X.XX	48.69	-13.35	35.34	46	-10.66	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ v) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB μ v/m) = Reading(dB μ v) + Factor(dB/m)

Limit (dB μ v/m) = Limit stated in standard

Margin (dB) = Result(dB μ v/m) - Limit (dB μ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

6.7.The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectrum analyzer plots are attached as below.

9kHz-30MHz test data

ACCURATE TECHNOLOGY CO., LTD

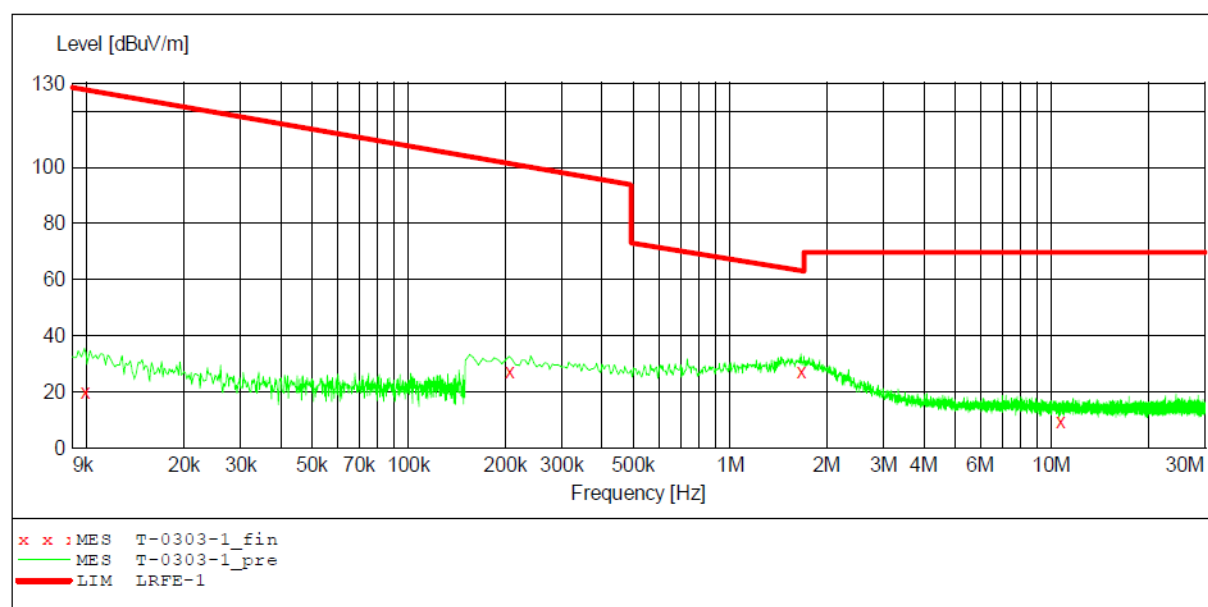
FCC Class B 3m Radiated

EUT: Wireless Stereo Earbuds M/N: NS-CAHBTAP
 Manufacturer: Country Mate Technology Ltd
 Operating Condition: TX 10.579MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: X
 Start of Test: 2018-3-3 /

SCAN TABLE: "LFRE(E) Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency 9.0 kHz	Frequency 150.0 kHz	Width 100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516E
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516E



MEASUREMENT RESULT: "T-0303-1_fin"

2018-3-3

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
0.009800	20.20	20.1	127.8	107.6	QP	100.0	0.00	HORIZONTAL
0.205000	27.00	20.2	101.4	74.4	QP	100.0	0.00	HORIZONTAL
1.660000	27.00	20.4	63.2	36.2	QP	100.0	0.00	HORIZONTAL
10.579000	9.70	20.7	69.5	59.8	QP	100.0	0.00	HORIZONTAL

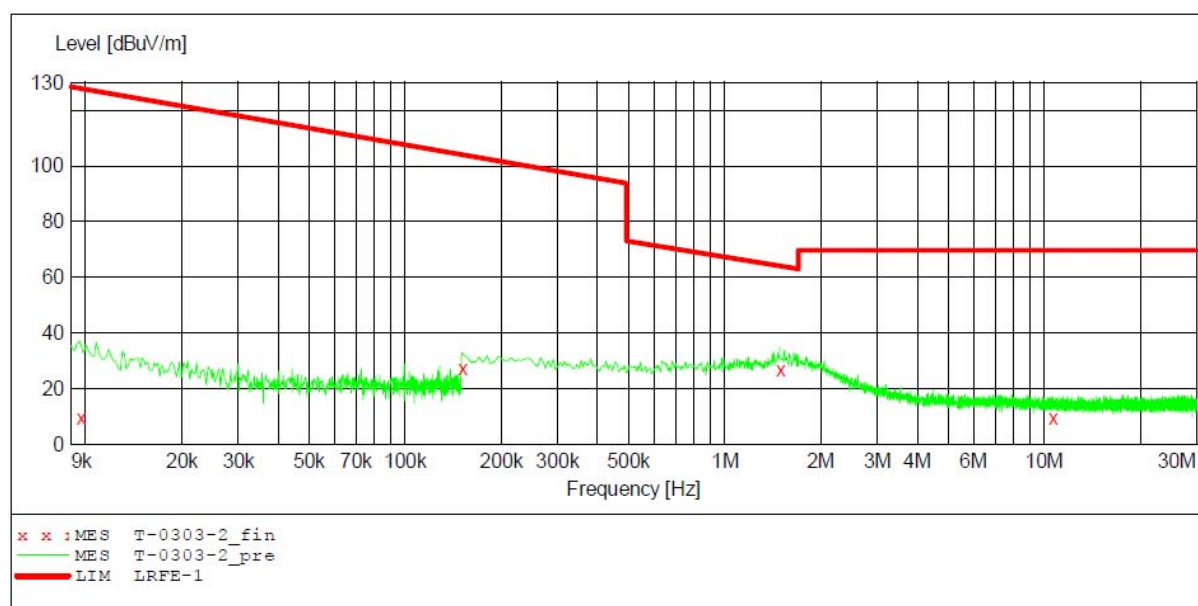
ACCURATE TECHNOLOGY CO.,LTD

FCC Class B 3m Radiated

EUT: Wireless Stereo Earbuds M/N:NS-CAHBTAP
 Manufacturer: Country Mate Technology Ltd
 Operating Condition: TX 10.579MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Y
 Start of Test: 2018-3-3 /

SCAN TABLE: "LFRE(E) Fin"

Short Description: _SUB_STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz 1516E
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz 1516E



MEASUREMENT RESULT: "T-0303-2_fin"

2018-3-3

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
0.009600	9.70	20.1	127.9	118.2	QP	100.0	0.00	HORIZONTAL
0.150000	27.20	20.1	104.1	76.9	QP	100.0	0.00	HORIZONTAL
1.485000	26.80	20.4	64.1	37.3	QP	100.0	0.00	HORIZONTAL
10.579000	9.50	20.7	69.5	60.0	QP	100.0	0.00	HORIZONTAL

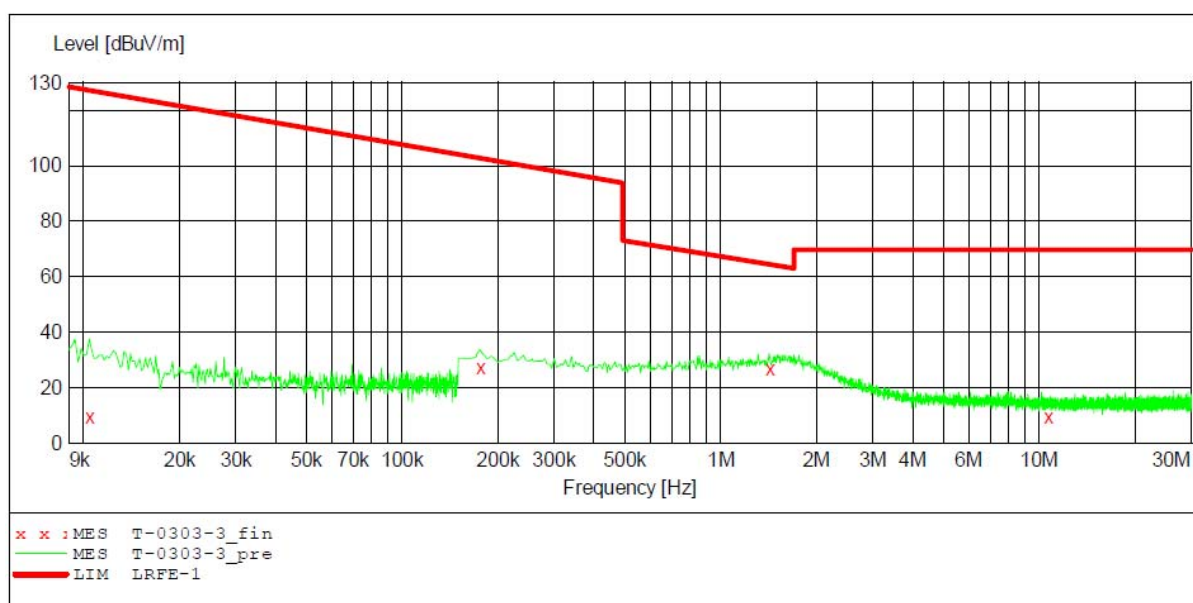
ACCURATE TECHNOLOGY CO., LTD

FCC Class B 3m Radiated

EUT: Wireless Stereo Earbuds M/N: NS-CAHBTAP
 Manufacturer: Country Mate Technology Ltd
 Operating Condition: TX 10.579MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3.7V
 Comment: Z
 Start of Test: 2018-3-3 /

SCAN TABLE: "LFRE(E) Fin"

Start	Stop	Step	_SUB_STD_VTERM2	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	1.70	QuasiPeak	1.0 s	200 Hz	1516E
150.0 kHz	30.0 MHz	5.0 kHz		QuasiPeak	1.0 s	9 kHz	1516E



MEASUREMENT RESULT: "T-0303-3_fin"

2018-3-3

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
0.010400	9.50	20.1	127.2	117.7	QP	100.0	0.00	HORIZONTAL
0.175000	27.20	20.2	102.7	75.5	QP	100.0	0.00	HORIZONTAL
1.420000	26.60	20.4	64.4	37.8	QP	100.0	0.00	HORIZONTAL
10.579000	9.70	20.7	69.5	59.8	QP	100.0	0.00	HORIZONTAL

30MHz-1000MHz test data



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

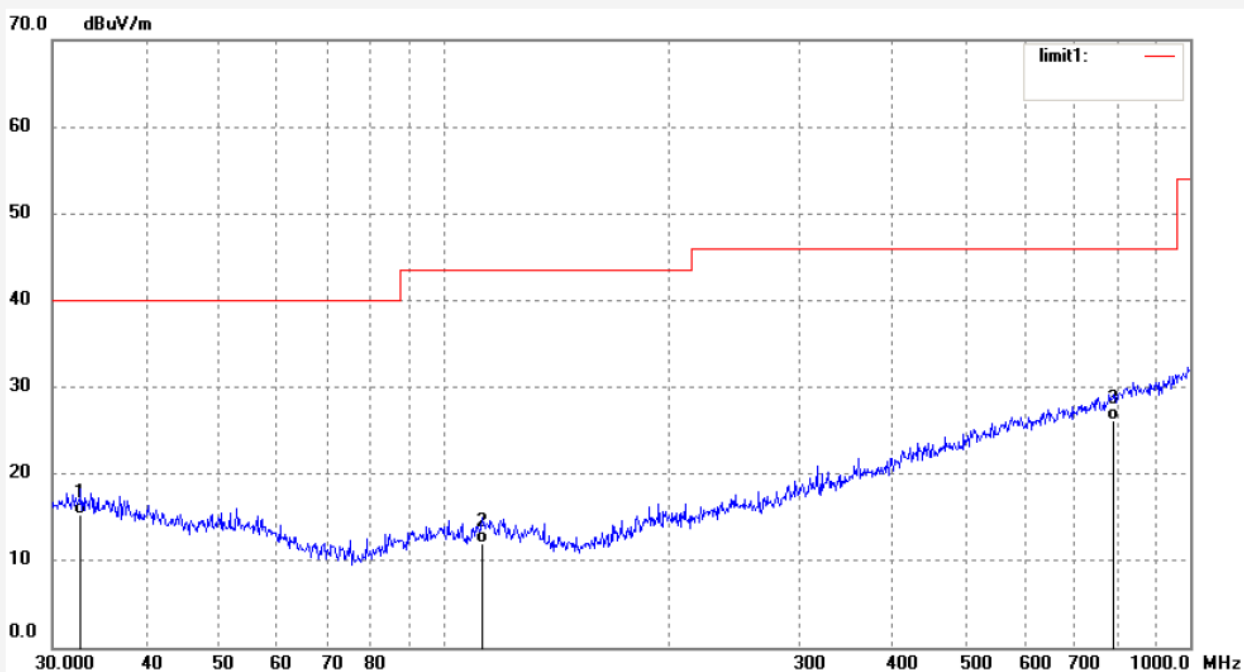
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2018 #495
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Wireless Stereo Earbuds
Mode: TX 10.579MHz
Model: NS-CAHBTAP
Manufacturer: Country Mate Technology Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/10/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.7486	25.49	-10.20	15.29	40.00	-24.71	QP			
2	112.9196	25.30	-13.37	11.93	43.50	-31.57	QP			
3	790.6187	25.50	0.63	26.13	46.00	-19.87	QP			

Job No.: LGW2018 #496

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Wireless Stereo Earbuds

Mode: TX 10.579MHz

Model: NS-CAHBTAP

Manufacturer: Country Mate Technology Ltd

Polarization: Vertical

Power Source: DC 3.7V

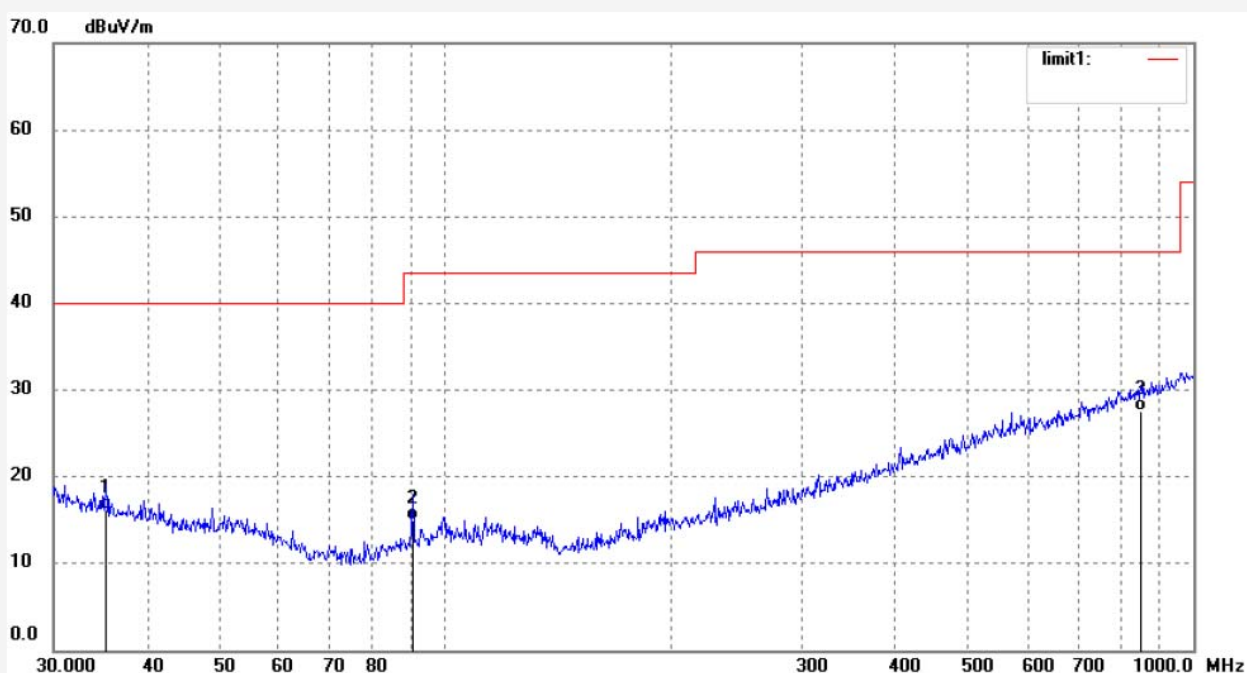
Date: 18/02/10/

Time:

Engineer Signature: WADE

Distance: 3m

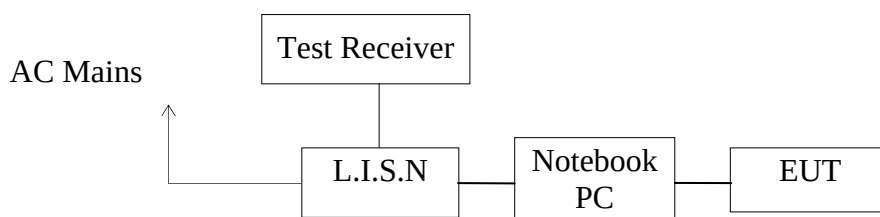
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.2511	26.60	-10.47	16.13	40.00	-23.87	QP			
2	90.5374	30.00	-14.98	15.02	43.50	-28.48	QP			
3	851.0353	25.99	1.57	27.56	46.00	-18.44	QP			

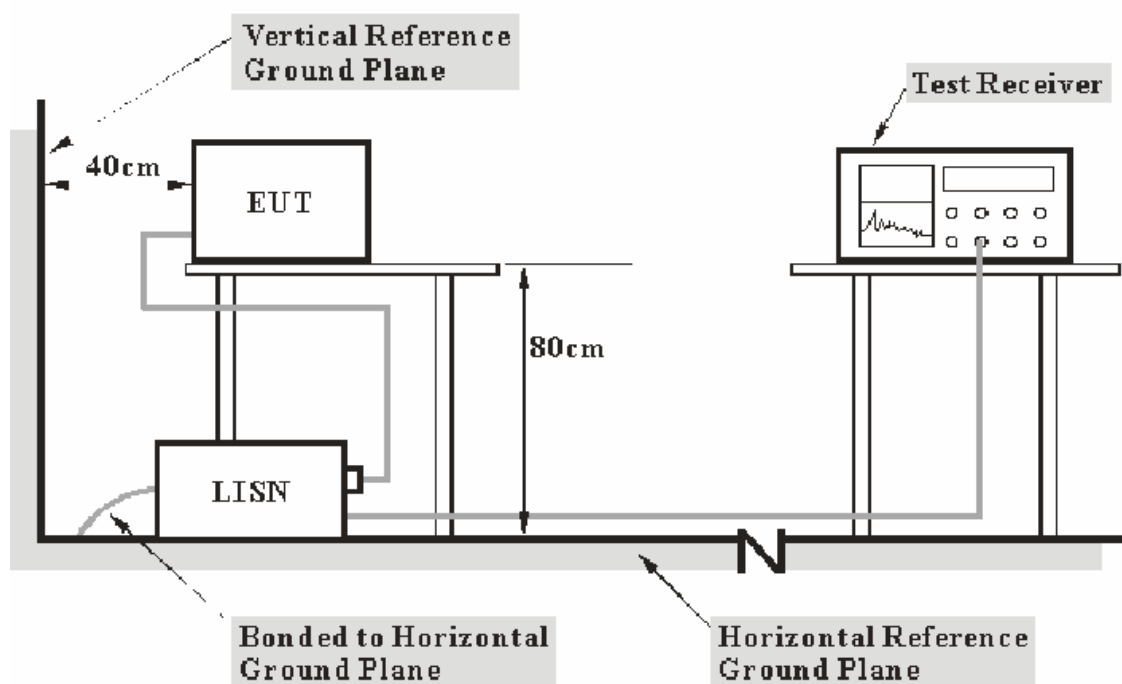
7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207 & RSS-GEN 8.8

7.1. Block Diagram of Test Setup



(EUT: Wireless Stereo Earbuds)

7.2. Test System Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

7.3.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies.		
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

7.4.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

7.5.Operating Condition of EUT

7.5.1. Setup the EUT and simulator as shown as Section 7.1.

7.5.2. Turn on the power of all equipment.

7.5.3. Let the EUT work in test mode and measure it.

7.6.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

7.7.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.5	51.1	34.2	56.0	46.0	4.9	11.8	Pass

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dBμV) = Limit stated in standard

Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:

Margin = Limit (dBμV) - Level (dBμV)

7.8.Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : TX (AC 120V/60Hz)								
MEASUREMENT RESULT: "TUV-0210-1_fin"								
2/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.175000	57.30	10.5	65	7.4	QP	N	GND	
0.235000	48.60	10.6	62	13.7	QP	N	GND	
4.820000	43.50	11.1	56	12.5	QP	N	GND	
22.180000	33.20	11.4	60	26.8	QP	N	GND	
MEASUREMENT RESULT: "TUV-0210-1_fin2"								
2/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.180000	42.20	10.5	55	12.3	AV	N	GND	
0.235000	32.30	10.6	52	20.0	AV	N	GND	
4.830000	37.30	11.1	46	8.7	AV	N	GND	
22.015000	26.70	11.4	50	23.3	AV	N	GND	

MEASUREMENT RESULT: "TUV-0210-2_fin"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	55.60	10.5	65	8.9	QP	L1	GND
0.240000	47.30	10.6	62	14.8	QP	L1	GND
3.270000	40.00	11.1	56	16.0	QP	L1	GND
23.545000	33.80	11.5	60	26.2	QP	L1	GND

MEASUREMENT RESULT: "TUV-0210-2_fin2"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	40.30	10.5	55	14.2	AV	L1	GND
0.245000	31.70	10.6	52	20.2	AV	L1	GND
4.720000	37.30	11.1	46	8.7	AV	L1	GND
5.840000	28.70	11.2	50	21.3	AV	L1	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

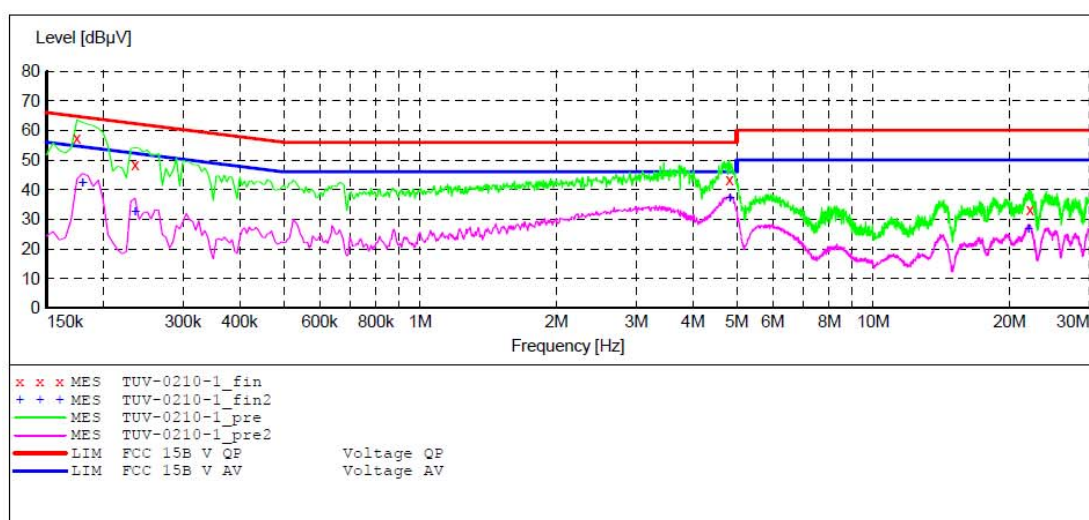
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: Wireless Stereo Earbuds M/N: NS-CAHBTAP
 Manufacturer: Country Mate Technology Ltd
 Operating Condition: TX
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: N 120V/60Hz
 Comment: Mains port
 Start of Test: 2/10/2018 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "TUV-0210-1_fin"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175000	57.30	10.5	65	7.4	QP	N	GND
0.235000	48.60	10.6	62	13.7	QP	N	GND
4.820000	43.50	11.1	56	12.5	QP	N	GND
22.180000	33.20	11.4	60	26.8	QP	N	GND

MEASUREMENT RESULT: "TUV-0210-1_fin2"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	42.20	10.5	55	12.3	AV	N	GND
0.235000	32.30	10.6	52	20.0	AV	N	GND
4.830000	37.30	11.1	46	8.7	AV	N	GND
22.015000	26.70	11.4	50	23.3	AV	N	GND

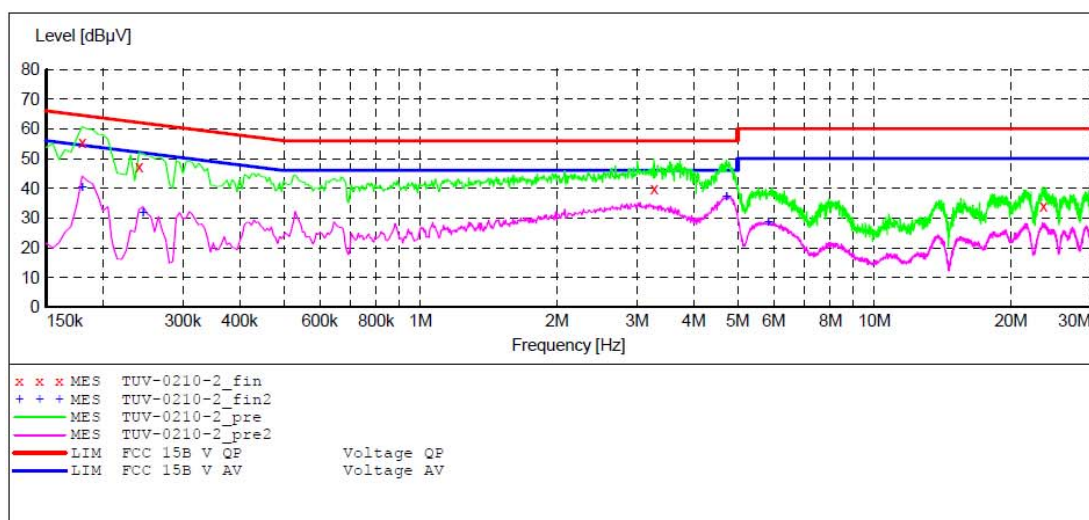
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: Wireless Stereo Earbuds M/N: NS-CAHBTAP
 Manufacturer: Country Mate Technology Ltd
 Operating Condition: TX
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: L 120V/60Hz
 Comment: Mains port
 Start of Test: 2/10/2018 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "TUV-0210-2_fin"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	55.60	10.5	65	8.9	QP	L1	GND
0.240000	47.30	10.6	62	14.8	QP	L1	GND
3.270000	40.00	11.1	56	16.0	QP	L1	GND
23.545000	33.80	11.5	60	26.2	QP	L1	GND

MEASUREMENT RESULT: "TUV-0210-2_fin2"

2/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	40.30	10.5	55	14.2	AV	L1	GND
0.245000	31.70	10.6	52	20.2	AV	L1	GND
4.720000	37.30	11.1	46	8.7	AV	L1	GND
5.840000	28.70	11.2	50	21.3	AV	L1	GND

8. ANTENNA REQUIREMENT

8.1.The Requirement

According to 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.

8.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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