SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

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TEST REPORT

Application No.:	SZEM1612010635AV
Applicant:	Shenzhen Inecan Electronic Co., Ltd
Address of Applicant:	54A, Puxia Road, Liuyue Village, Henggang Town, Longgang District, Shenzhen, Guangdong Province, P.R.China
Manufacturer:	Shenzhen Inecan Electronic Co., Ltd
Address of Manufacturer:	54A, Puxia Road, Liuyue Village, Henggang Town, Longgang District, Shenzhen, Guangdong Province, P.R.China
Factory:	Shenzhen Inecan Electronic Co., Ltd
Address of Factory:	54A, Puxia Road, Liuyue Village, Henggang Town, Longgang District, Shenzhen, Guangdong Province
Equipment Under Test (EUT):	
EUT Name:	earphone
Model No.:	CNS-CEP03G, CNS-CEP03P, CNS-CEP03BL ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards:	EN 55032:2015 EN 55024:2010+A1:2015
Date of Receipt:	2016-12-12
Date of Test:	2016-12-12 to 2016-12-13
Date of Issue:	2016-12-15
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Test Summary

Item	Standard	Method	Class	Result
Radiated Disturbance (30MHz-1GHz)	EN 55032:2015	EN 55032:2015	Class B	Pass
Electrostatic Discharge	EN 55024:2010 +A1:2015	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz)	EN 55024:2010 +A1:2015	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass

Declaration of EUT Family Grouping:

Model No.: CNS-CEP03G, CNS-CEP03P, CNS-CEP03BL

Only the model CNS-CEP03BL was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above models, with only difference being of color and model No..

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply: Supply by mobile phone

Cable: EUT cable: 130cm unshielded

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPhone 4	Apple	A1349	C37HL4GXDP0N
iPhone 6	Apple	MG472ZP/A	C34NHTMFG5MN

4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under EN 55032:2015

Method	Item	Status
EN 55032:2015	Conducted Disturbance at Mains Terminals (150kHz-30MHz)	×
EN 55032:2015	Conducted Disturbance at Telecommunication Port (150kHz-30MHz)	×
EN 55032:2015	Conducted Disturbance at Antenna Terminals (30MHz-1GHz)	×
EN 55032:2015	Radiated Disturbance(30MHz-1GHz)	√
EN 55032:2015	Radiated Disturbance(above 1GHz)	×
EN 55032:2015	Conducted Disturbance at Antenna Terminals (30MHz-2.15GHz)	×

Table 2 : Tests Carried Out Under EN 55024:2010+A1:2015

Method	Item	Status
EN 61000-4-2:2009	Electrostatic Discharge	√
EN 61000-4-3:2006 +A1:2008+A2:2010	Radiated Immunity(80MHz-1GHz)	√
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Power Port	×
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Signal Port	×
EN 61000-4-5:2014	Surge at Power Port	×
EN 61000-4-5:2014	Surge at Signal Port	×
EN 61000-4-6:2014	Conducted Immunity at Power Port(150kHz-80MHz)	×
EN 61000-4-6:2014	Conducted Immunity at Signal Port(150kHz-80MHz)	×
EN 61000-4-8:2010	Power Frequency Magnetic Field	×
EN 61000-4-11:2004	Voltage Dips and Interruptions	×

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong,

China 518057

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

•CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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. Registration No.: 556682.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: Monitored the work status of the EUT

Audio: Monitored the sound of the EUT

5 Equipment List

Radiated Disturbance(30MHz-1GHz)						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2016-05-13	2017-05-13
2	EMI Test Receiver (9KHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2016-04-25	2017-04-25
3	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-29
4	Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2016-07-06	2017-07-06

Electrostatic Discharge						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	ESD Simulator	SCHAFFNER	NSG 438	SEM019-01	2016-03-16	2017-03-16
2	ESD Ground Plane	SGS(3m*3m)	N/A	SEN006-01	N/A	N/A

Radiated Immunity(80MHz-1GHz)						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2014-06-10	2017-06-10
2	Signal Generator	Rohde & Schwarz	SMB100A	SEM006-11	2016-04-25	2017-04-25
3	Broadband Amplifier(80MHz-1GHz)	Rohde & Schwarz	BBA150-BC250	SEM005-12	2016-10-09	2017-10-09
4	Broadband Amplifier(800MHz-3GHz)	Rohde & Schwarz	BBA150-D110	SEM005-13	2016-10-09	2017-10-09
5	Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2016-04-25	2017-04-25
6	Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-08	2016-04-25	2017-04-25
7	Log-periodic Antenna(0.07-3GHz)	Schwarzbeck	VUSLP9111E	SEM003-19	N/A	N/A

General used equipment						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12
2	Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
3	Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
4	Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2016-05-18	2017-05-18

6 Emission Test Results

6.1 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz-230MHz	30 dB(μV/m) quasi-peak
230MHz-1GHz	37 dB(μV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

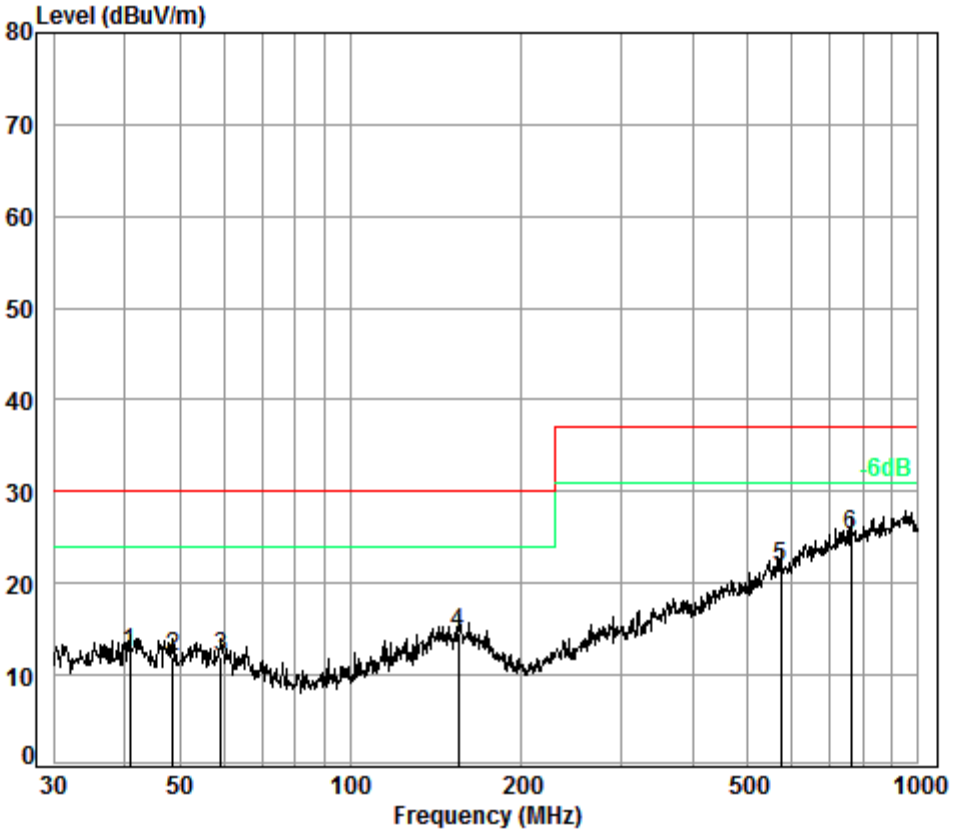
6.1.1 E.U.T. Operation

Operating Environment:								
Temperature:	24.0	°C	Humidity:	54	% RH	Atmospheric Pressure:	1010	mbar
Test mode:	a: On mode, build the connection between EUT and mobile phone, keep EUT working with standard testing signal.							
The worst case for final test:	a: On mode, build the connection between EUT and mobile phone, keep EUT working with standard testing signal.							

6.1.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

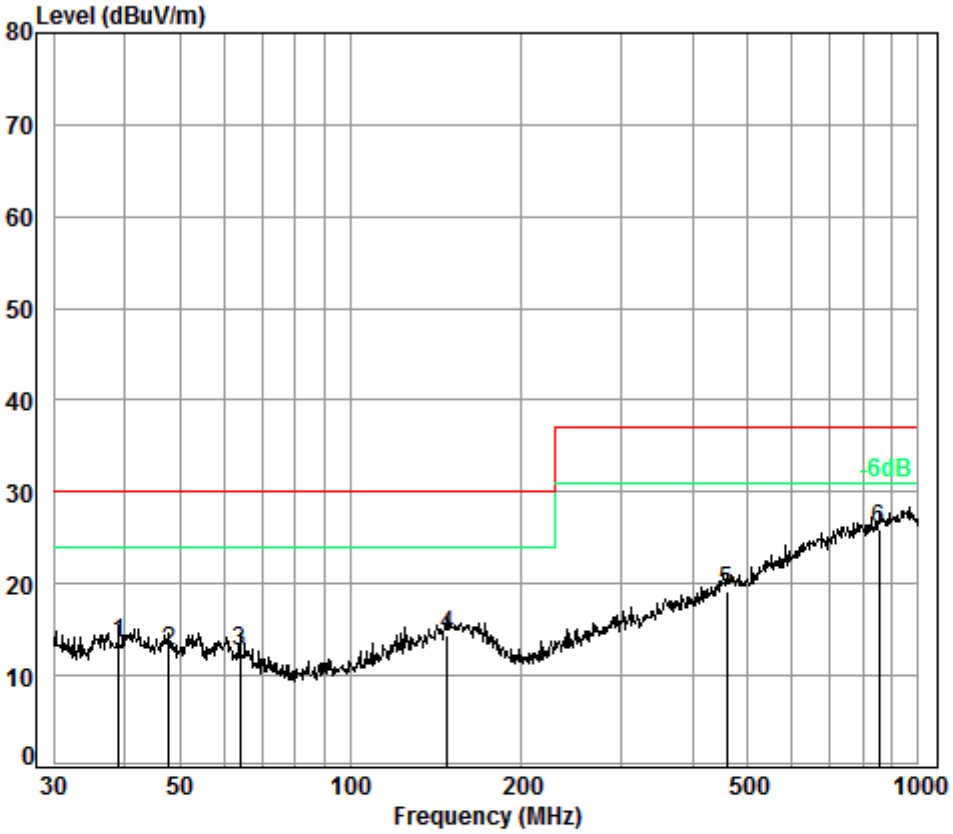
Mode:a;Polarization:Horizontal



Condition: 10m Horizontal
Job No. : 10635AV
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	40.84	6.80	13.25	32.99	25.41	12.47	30.00	-17.53
2	48.67	6.87	12.81	33.00	25.37	12.05	30.00	-17.95
3	59.23	7.00	12.06	32.95	25.89	12.00	30.00	-18.00
4	154.82	7.48	13.40	32.74	26.43	14.57	30.00	-15.43
5	572.61	8.83	18.14	32.60	27.37	21.74	37.00	-15.26
6 pp	760.70	9.20	20.90	32.60	27.73	25.23	37.00	-11.77

Mode:a;Polarization:Vertical



Condition: 10m VERTICAL
Job No. : 10635AV
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	39.02	6.78	13.19	32.98	26.53	13.52	30.00	-16.48
2	47.83	6.86	12.83	33.00	25.88	12.57	30.00	-17.43
3	63.98	7.00	11.20	32.93	27.44	12.71	30.00	-17.29
4	147.92	7.44	13.28	32.74	26.36	14.34	30.00	-15.66
5	459.11	8.45	16.28	32.60	26.96	19.09	37.00	-17.91
6 pp	851.04	9.36	21.61	32.55	27.42	25.84	37.00	-11.16

7 Immunity Test Results

7.1 Performance Criteria Description in EN 55024:2010+A1:2015

Criterion A The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion B After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion C Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

7.2 Electrostatic Discharge

Test Requirement: EN 55024:2010+A1:2015
Test Method: EN 61000-4-2:2009
Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum of four test points (a minimum of 50 discharges at each point)
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 mbar

Test mode: a: On mode, build the connection between EUT and mobile phone, keep EUT working with standard testing signal.

7.2.2 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	B
Air Discharge	2,4,8	-	1	B
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.

B: There is noise when testing on the seams of microphone hole, but it can recover automatically.

7.3 Radiated Immunity(80MHz-1GHz)

Test Requirement: EN 55024:2010+A1:2015
Test Method: EN 61000-4-3:2006+A1:2008+A2:2010
Performance Criterion: A
Frequency Range: 80MHz to 1GHz
Antenna Polarisation: Vertical and Horizontal
Modulation 1kHz,80% Amp. Mod,1% increment

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar

Test mode: a: On mode, build the connection between EUT and mobile phone, keep EUT working with standard testing signal.

7.3.2 Test Results:

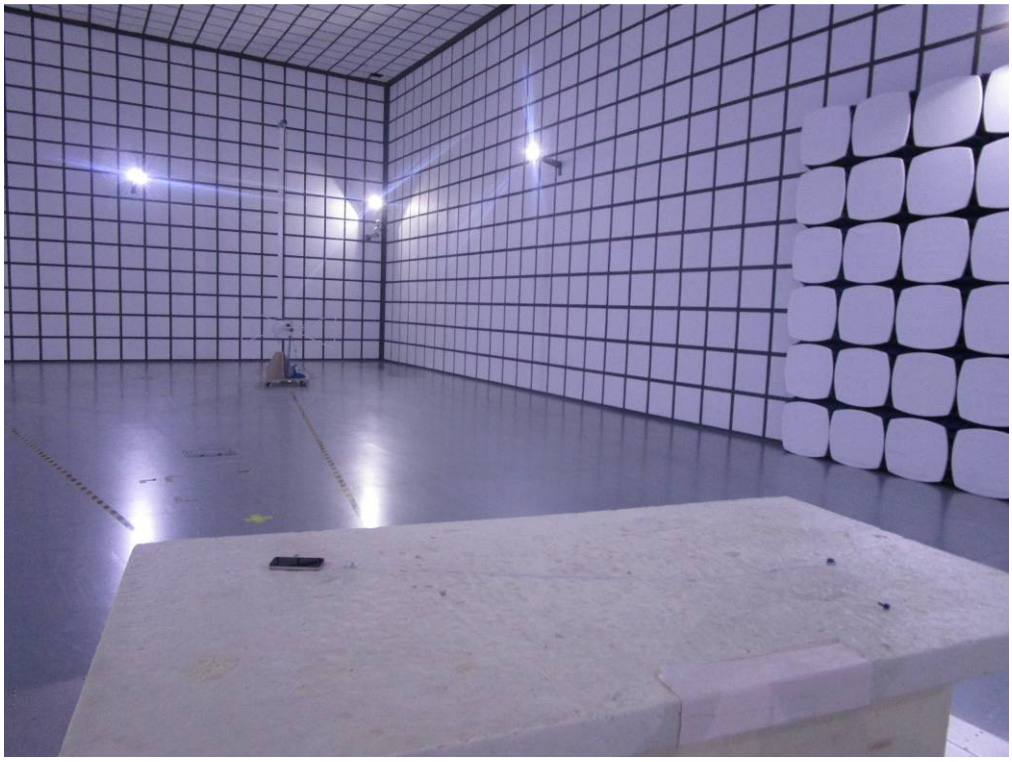
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	2s	A
80MHz-1GHz	3	Back	2s	A
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Top	2s	A
80MHz-1GHz	3	Underside	2s	A

Results:

A: No degradation in the performance of the EUT was observed.

8 Photographs

8.1 Radiated Disturbance(30MHz-1GHz) Test Setup



8.2 Electrostatic Discharge Test Setup

8.3 Radiated Immunity(80MHz-1GHz) Test Setup

8.4 EUT Constructional Details