EMC TEST LAB

EMC TEST Report
to
Built on Enthusiasm
For
Bluetooth Class D Audio Amplifier
TSA9840
EMC TEST LAB
A Division of Daley Electronics Pty. Ltd., A.C.N. 005 279 809

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EMC Test Report

Report to: Built on Enthusiasm
18 Glenbrae Court
Bannockburn
Victoria 3331 Australia.

Subject: Bluetooth Class D Audio Amplifier TSA9840

Tested to:
AS/NZS CISPR 32:2013 “Electromagnetic compatibility of multimedia equipment- Emission requirements”

Report Date –21st July 2018

Result: PASS with no modification. Class B Limits.

Per

M. Daley
EMC TEST REPORT

Item Tested- Manufacturer- Built on Enthusiasm

Model: TSA9840

The item under test is a class D amplifier that receives input from a Bluetooth RF connection. The emissions related to the Bluetooth receiver/transmitter do not form part of this report. Power is from an external 12VDC supply. The load was a 4 ohm loud speaker. Test signal 1kHz. Sine wave.

Test Location- EMC Test Lab shielded room

Test Layout- Refer to photograph. Equipment on table 700mm above the floor.

Power supply- 12.0VDC at 0.08A.

Output – 1kHz. at normal listening level.

Date Tested: 19/7/18

Temperature: 18 deg. C.

Test Program-

Tests for AS/NZS CISPR 32

1) Radiated Emission 30 to 1000MHz.

 Remainder of page deliberately left blank.
Tests Commence

1) **Radiated Emission – 30 to 1000MHz.**
Limits as per Table A.4. Tested at 12VDC.
Measured at 3 metres with biconical antenna and ER55CR receiver

Refer graphs BUILT1 (Horizontal antenna) and BUILT2 (Vertical antenna).
Graphs Appended.

Result- PASS with a margin of 10.4dB at 535.8MHz. with a vertical antenna.
Class B limits.

End of Tests.
Measurement Uncertainty

Calculated measurement Uncertainties-

a) Conducted Emission- 3.9dB

b) Radiated Emission- Shielded Room to 1GHz- 8.0dB

c) Radiated Emission- Open Area Test Site to 1GHz.- 6.0dB

d) Frequency – 1 in 10 million.

Appendices: Testing Equipment
Graphs
EMC TESTING - EQUIPMENT

Calibration Equipment:

1. HP 436A
   Power Meter- Power Reference  NATA Calibration
   Serial No. 1930A06084

2. Fluke 45 Multimeter  NATA Calibration
   Serial No. 6176008

2A. HP 8656B
    Signal Generator
    S/N 3334U14415  Traceable Calibration

2B LAPLACE Emission Reference Source S/N 1167  UKAS Calibration
2C 18GHz. Comb Generator (Daley Electronics) Traceable Calibration

Test Instruments:

3. Electro-Metrics Interference Analyzer Model EMC-25 Mk III, Serial No 761
   Plus CRM-25 CISPR detector

4. Rohde & Schwarz HMS-X Spectrum Analyzer
   Serial Number 023823501

5. Rohde & Schwarz ESS EMC Receiver Serial Number  833776/003

6. Hewlett Packard 8447E Pre Amplifier
   Serial No. 1937A01729

7. Line Impedance Stabilization Network
   (Daley Electronics Pty. Ltd.)

8. Tektronix CT-2 Current Probe

9. Tektronix P6021 Current Probe

10. Seaward 247A91A Biconnical Antenna
    (Manufacturer's calibration)

11. 2 metre Loop Antenna to Annex B of AS 4051 1998 plus 40dB amplifier HP 462a S/N 551-00831


13. HP 8593E Spectrum Analyzer Serial Number 3911A03983

14. Horn Antenna CE18000 S/N 1321

15. Hyperlog 7060 Antenna

16. AFJ ER55CR EMC Receiver S/N 55399831086

EMCEQUIP 10/5/18
**AFJ ER55R 30MHz-1GHz EMI RECEIVER 7.11**

**Cable ROOM V 1/1/6/13**

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<th>DETECT</th>
<th>DEM:</th>
<th>LIM1:</th>
<th>LIM2:</th>
<th>TSA9840 BLUETOOTH AMPLIFIER</th>
<th>RADIATED EMISSION</th>
<th>VERTICAL ANTENNA</th>
<th>12V 0.0#A 1kHz.</th>
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<td>PEAK+QPEAK CAL</td>
<td>30.000-1000.000MHz</td>
<td>60KHz</td>
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**SN.:** 55399#31086

**Search Max-Peak Table**

**Firmware Ver.: 7.07**

**CORR.:** KFACT BICONICAL

**N. Freq. (MHz) Level (dBuV/m)**

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