



**Spectrum Research
& Testing Lab., Inc.**
No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan,
R.O.C.

TEST REPORT

Reference No.:A05071403
Report No.:FCCA05071403
FCC ID:TLJMDE35181018
Page:1 of 14
Date:Dec. 02, 2005

Product Name: POWER TUNE 2in1 FM TRANSMITTER /
CAR CHARGER
Model No.: GPSP08 / PSP-00771DC
Applicant: Millennium Dragon Electronics LTD.
11/F1-B, Kim Tak Building, 328-342A Nathan Road,
Kowloon, HongKong.
Date of Receipt: July 14, 2005
Finished date of Test: July 24, 2005
Applicable Standards: 47 CFR Part 15, Subpart C
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By : Julian Chiang Date: 12, 2, 2005
(Julian Chiang)

Approved By : Johnson Ho Date: Dec. 02, 2005
(Johnson Ho, Director)

NVLAQ[®]

Lab Code: 200099-0



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1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the applicant to claim that the product is endorsed by NVLAP, TÜV, NEMKO and SRT.
- The NVLAP logo applies only to the applicable standards specified in this report.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- AC power source, 120 Vac/60 Hz, was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.

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2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	POWER TUNE 2in1 FM TRANSMITTER / CAR CHARGER
MODEL NO.	GPSP08, PSP-00771DC
POWER REQUIREMENTS	DC12V1A
FREQUENCY BAND	88.1MHz----88.9MHz
CARRIER FREQUENCY	88.1 MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz
CHANNEL SPACING	200 KHz
CHANNEL BANDWIDTH	75 KHz
RF OUTPUT POWER	46 dB μ V
MODULATION TYPE	Frequency Modulation
CUTY CYCLE	15%
OPERATING TEMPERATURE RANG	-10-----85
NUMBER OF CHANNEL	5
MODE OF OPERATION	Simplex
ANTENNA TYPE	Internal

NOTE :

For more detailed features, please refer to the manufacturer's specification or User's Manual.
 GPSP08 and PSP-00771DC are identical except for model number. The difference is only in the different market sold.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID/DOC	REMARK
N/A				

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2.3 DESCRIPTION OF TEST MODE

The EUT was tested for emission measurement under the following situations:

Mode	
1	88.1MHz
2	88.5MHz
3	88.9MHz

2.4 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003 and CISPR22:2003. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID/DOC	CABLE
1	Audio Generator	KENWOOD	AD-203G	N/A	N/A
2	Receiver	PROSOUND	PR-6877	DOC	1.5m unshielded power cord 1.5m shielded data cable
3	Antenna	MiraDeed	N/A	N/A	0.6m unshielded cable

NOTE : For the actual test configuration, please refer to the photos of testing.

3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product for car. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C
 ANSI C63.4:2003

All tests have been performed and recorded as per the above standards.

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4. RADIATED EMISSION TEST

4.1 RADIATED EMISSION LIMIT

FCC Part 15, Subpart C Section 15.239.

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
88.1 – 88.9	3	48

FCC Part 15, Subpart B Section 15.209.

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE :

1. In the emission tables above , the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

CISPR 22:2003 limits of radiated emission measurement for frequency below 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dB μ V/m	dB μ V/m
30 – 230	40	30
230 - 1000	47	37

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).

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4.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test:

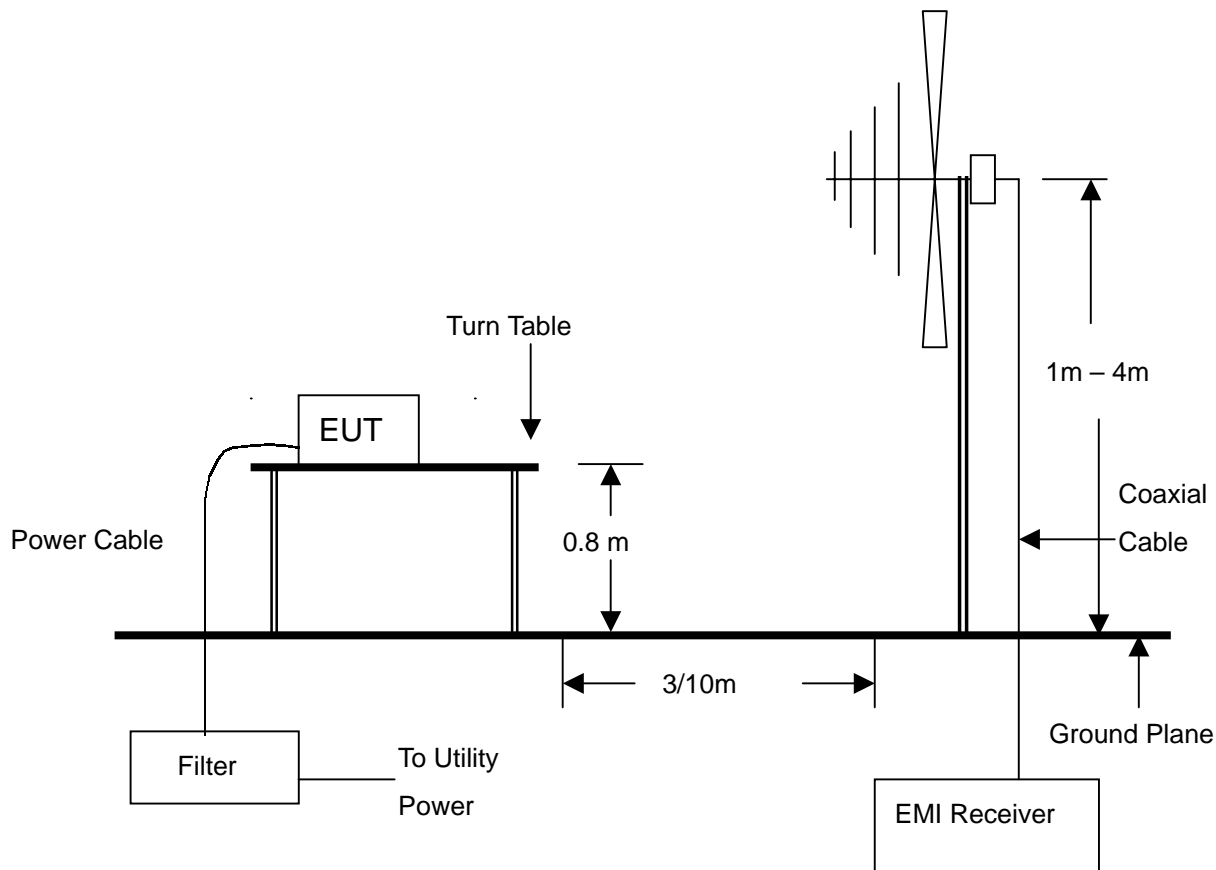
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 2750 MHz	ROHDE & SCHWARZ	ESI26	OCT. 2006 ETC
BI-LOG ANTENNA	25 MHz TO 2 GHz	EMCO	CBL6112B	FEB. 2006 SRT
SPECTRUM ANALYZER	9 KHz TO 26.5 GHz	HP	8593E/ 3710A03220	MAY 2006 ETC
PRE-AMPLIFIER	1 GHz TO 26.5 GHz	HP	8449B/ 3008A01019	NOV. 2006 ETC
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9602-4681	DEC. 2006 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	DEC. 2006 SRT
COAXIAL CABLE	25M	SUNCITY	J400/ 25M	AUG. 2006 SRT
FILTER	2 LINE, 30A	FIL.COIL	FC-943/ 869	N/A
FREQUENCY CONVERTER	N/A	APC	AFC-2KBB/ F100030031	AUG. 2006 SRT

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.



4.3 TEST SET-UP



NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.



4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003. The measurements were made at an open area test site with 10 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency. First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.

4.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.



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4.6 RADIATED EMISSION TEST RESULT

Temperature:	27°C	Humidity:	55 %RH
Frequency Range:	88 - 108 MHz	Measured Distance:	3m
Receiver Detector:	AV.	Tested Mode:	TX (Fundamental Frequency)
Tested Date:	July 24, 2005		88.1MHz
Tested By:	Hugo Yeh		

Fundamental frequency of transmitter

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
88.1050 (F)	H	1.22	7.20	36.2	44.6	48.0	-3.4
88.1050(F)	V	1.22	7.20	37.0	45.4	48.0	-2.6

Receiver Detector: Q.P. Tested Mode: TX (Harmonic)

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
177.2200	H	1.64	9.14	22.4	33.2	43.5	-10.3
264.3200	H	2.36	12.23	23.6	38.2	46.0	-7.8
352.3980	H	3.28	15.19	24.7	43.2	46.0	-2.8
440.6870	H	2.98	16.72	23.9	43.6	46.0	-2.4
617.2880	H	4.08	19.54	16.8	40.4	46.0	-5.6
793.5420	H	5.09	21.39	13.7	40.2	46.0	-5.8
177.2140	V	1.64	9.14	25.8	36.6	43.5	-6.9
264.1520	V	2.36	12.23	27.3	41.9	46.0	-4.1
352.7430	V	3.28	15.19	24.9	43.4	46.0	-2.6
441.3260	V	2.98	16.73	19.4	39.1	46.0	-6.9
617.1840	V	4.08	19.54	14.9	38.5	46.0	-7.5
793.1700	V	5.09	21.39	13.7	40.2	46.0	-5.8

NOTE :

1. Measurement uncertainty is less than +/- 2dB
2. "": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss
4. The field strength of other emission frequencies were very low against the limit.
5. (F) : Fundamental frequency of transmitter.



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Temperature:	27°C	Humidity:	55 %RH
Frequency Range:	88 - 108 MHz	Measured Distance:	3m
Receiver Detector:	AV.	Tested Mode:	TX (Fundamental Frequency)
Tested Date:	July 24, 2005		88.5MHz
Tested By:	Hugo Yeh		

Fundamental frequency of transmitter

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
88.5070(F)	H	1.22	7.20	35.6	44.0	48.0	-4.0
88.5070(F)	V	1.22	7.20	34.8	43.2	48.0	-16.6

Receiver Detector: Q.P. Tested Mode: TX (Harmonic)

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
178.3410	H	1.59	9.19	24.6	35.4	43.5	-8.1
266.7390	H	2.29	12.33	28.7	43.3	46.0	-2.7
354.1820	H	3.28	15.23	25.1	43.6	46.0	-2.4
442.3970	H	2.98	16.75	20.4	40.1	46.0	-5.9
532.0110	H	3.61	18.04	19.7	41.4	46.0	-4.6
619.6670	H	4.12	19.58	16.4	40.1	46.0	-5.9
178.2150	V	1.59	9.19	23.8	34.6	43.5	-8.9
265.7480	V	2.33	12.28	27.9	42.5	46.0	-3.5
354.1720	V	3.28	15.23	24.8	43.3	46.0	-2.7
443.1540	V	2.97	16.76	19.7	39.4	46.0	-6.6
533.9170	V	3.62	18.06	20.3	42.0	46.0	-4.0
709.7250	V	4.04	21.22	17.4	42.7	46.0	-3.3

NOTE :

1. Measurement uncertainty is less than +/- 2dB
2. "": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss
4. The field strength of other emission frequencies were very low against the limit.
5. (F) : Fundamental frequency of transmitter.



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Temperature:	27°C	Humidity:	55 %RH
Frequency Range:	88 - 108 MHz	Measured Distance:	3m
Receiver Detector:	AV.	Tested Mode:	TX (Fundamental Frequency)
Tested Date:	July 24, 2005		88.9MHz
Tested By:	Hugo Yeh		

Fundamental frequency of transmitter

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
88.8910	H	1.22	7.20	34.7	43.1	48.0	-4.5
88.8910	V	1.22	7.20	35.1	43.5	48.0	-4.9

Receiver Detector: Q.P. Tested Mode: TX (Harmonic)

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
179.0230	H	1.53	9.25	25.7	36.5	43.5	-7.0
268.2840	H	2.22	12.44	26.4	41.1	46.0	-4.9
356.1840	H	3.27	15.28	24.9	43.4	46.0	-2.6
445.2320	H	2.97	16.79	16.8	36.6	46.0	-9.4
536.4700	H	3.63	18.11	18.7	40.4	46.0	-5.6
801.3670	H	5.22	21.43	16.4	43.0	46.0	-3.0
178.2150	V	1.59	9.19	25.8	36.6	43.5	-6.9
265.7480	V	2.33	12.28	25.7	40.3	46.0	-5.7
354.1720	V	3.28	15.23	23.7	42.2	46.0	-3.8
443.1540	V	2.97	16.76	20.7	40.4	46.0	-5.6
533.9170	V	3.62	18.06	17.6	39.3	46.0	-6.7
803.4630	V	5.19	21.48	15.4	42.1	46.0	-3.9

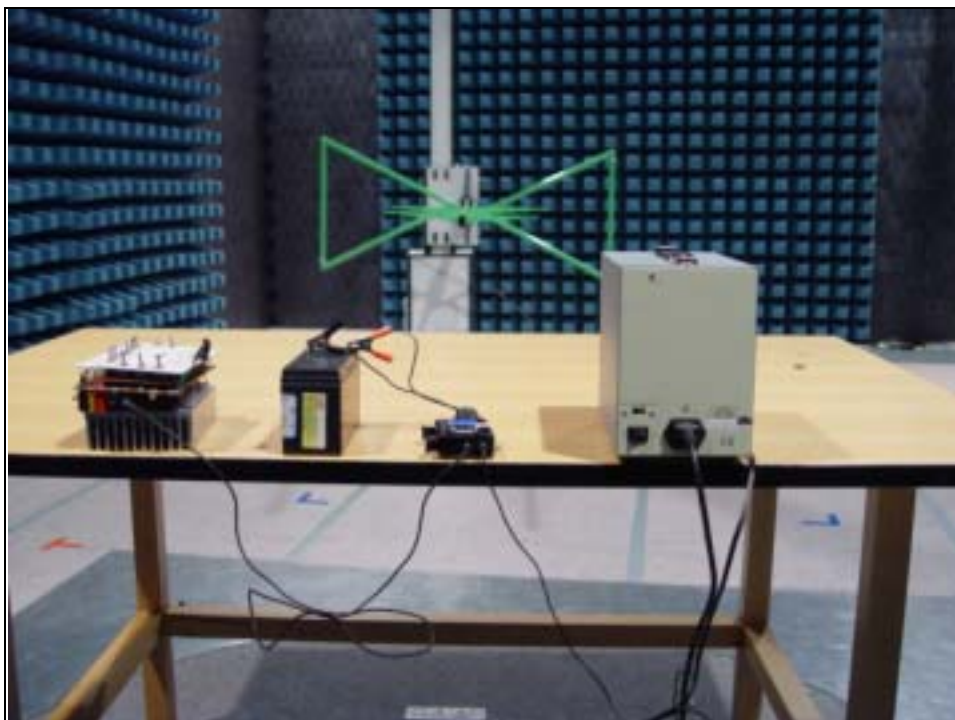
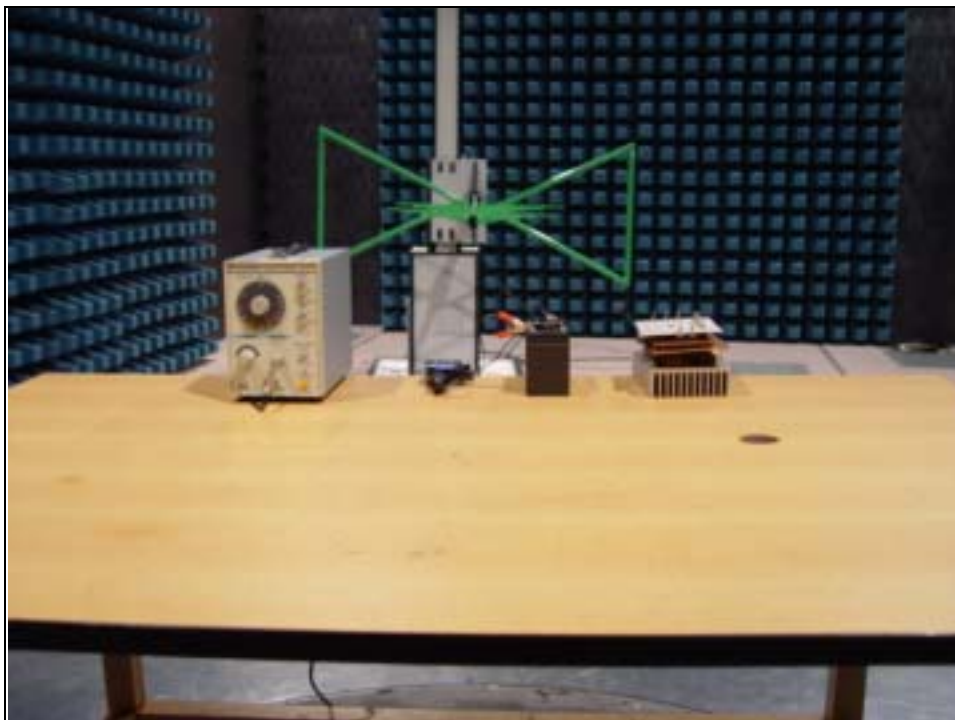
NOTE :

1. Measurement uncertainty is less than +/- 2dB
2. "": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss
4. The field strength of other emission frequencies were very low against the limit.
5. (F) : Fundamental frequency of transmitter.



5. PHOTOS OF TESTING

- Radiated test



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6. TERMS OF ABRIVATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction