HomeTek Technology Inc.

ADDRESS: No. 67-9, Shir Men Road, Tu Cheng City,
Taipei Hsien, Taiwan, R. O. C.
PHONE : 886-2-22608375 FAX : 886-2-22748013
E - mail : hometek@ms15.hinet.net

FCC TEST REPORT
FOR

APPLICANT	:	UNION POWER INFORMATION CO., LTD.
ADDRESS	:	13F-5, NO. 2, CHIEN-BA RD., CHUNG-HO, TAIPEI, TAIWAN, R. O. C.
EUT	:	FM Transmitter
MODEL NO.	:	FMT-100
FCC ID	:	TNTFMT100

Under Part 15, SUBPART C.

CLASS B

Certification

MEASUREMENT PROCEDURE USED

FCC RULES AND FCC / ANSI C63.4-2003

PREPARED BY :

HomeTek Technology Inc.

No. 67-9, Shir Men Road, Tu Cheng City,

Taipei Hsien. Taiwan, R. O. C.

Report # : FB4H020

HomeTek Technology Inc.

ADDRESS: No. 67-9, Shir Men Road, Tu Cheng City,
Taipei Hsien, Taiwan, R. O. C.
PHONE : 886-2-22608375 FAX : 886-2-22748013
E - mail : hometek@ms15.hinet.net

CERTIFICATION

EUT	: FM Transmitter
MODEL NO.	: FMT-100
FCC ID	: TNTFMT100
Receipt Date	: 08/30/2005 Final Test Date: 09/02/2005
REPORT #	: FB3J019
APPLICANT	: UNION POWER INFORMATION CO., LTD.
ADDRESS	: 13F-5, NO. 2, CHIEN-BA RD., CHUNG-HO, TAIPEI, TAIWAN, R. O. C.

MEASUREMENT PROCEDURE USED :

FCC RULES AND REGULATION PART 15, SUBPART C
AND FCC / ANSI C63.4-2003

We hereby show that:

The measurement sown in this test report were made in accordance with and no deviation with the procedures indicated, and the maximum energy emitted by the equipment was found to be within the FCC limits applicable.

This test result of this report applies to above tested sample only.

This test report shall not be reproduce in part without written approval of HomeTek Technology Inc.

PREPARED BY : Frankie FRANKIE WANG DATE : 9/16/2005

CHECK BY : ALAIN LIN / Director DATE : 9/18/2005

APPROVED BY : Tommy Rau TOMMY RAU / Manager DATE : 9/19/2005

TABLE OF CONTENTS

GENERAL INFORMATION

1	APPLICANT	:	UNION POWER INFORMATION CO., LTD.
2	ADDRESS	:	13F-5, NO. 2, CHIEN-BA RD., CHUNG-HO,
			TAIPEI, TAIWAN, R. O. C.
3	MANUFACTURER	:	UNION POWER INFORMATION IND. CO., LTD.
4	ADDRESS	:	No. 70, CHANG-JIANG-PU ROAD,
			HO-AU VILLAGE, HENG GANG,
			SHEN ZHEN CITY, GUANG DONG, CHINA

5 DESCRIPTION OF EUT :

EUT	:	FM Transmitter
FCC ID	:	TNTFMT100
Model Number	:	FMT-100
Serial #	:	N/A

6 FEATURES OF EUT :

6.1 Transmits on multiple FM channels from 88.1MHz, 88.5MHz, 88.9MHz.

6.2 Power on and off.

6.3 Included 2 AAA batteries.

6.4 Included 3.5mm stereo jack/2.5mm stereo plug adaptor.

7 TEST MODE :

The EUT were investigated with three operation modes shown as below :

(1) FM 88.1MHz Mode;
(2) FM 88.5MHz Mode;
(3) FM 88.9MHz Mode

The test mode of (3) FM 88.9MHz Mode is worst case, and the final test data were shown in this test report.

MODIFICATION LIST

THE FOLLOWING ACCESSORIES WERE ADDED TO THE EUT DURING TESTING :

NO MODIFICATION BY HOMETEK TECHNOLOGY INC.

CONDUCTED POWER LINE TEST

1 TEST PROCEDURE

According to **ANSI C63.4 – 2003**.

2 RESULT OF CONDUCTED EMISSION TEST

N/A (Conducted Power Line Test is not applicable to this EUT (Model : FMT-100)).

RADIATED EMISSION TEST

1 TEST INSTRUMENTS & FACILITIES

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

Item	Instruments /facilities	Specification	Manufacturer	Model # / S/N#	Date of Cal.
1	OPEN AREA TEST SITE	☑ OATS 3			JUL/2005
2	EMI TEST RECEIVER	20Hz ~ 26.5GHz	ROHDE & SCHWARZ	ESMI 845442/006	JAN/2005
3	PRE-AMPLIFIER	9KHz ~ 3000MHz	ADVANTEST	BB525C 90081001	SEP/2004
4	ANTENNA (BI-LOG)	25MHz ~ 2GHz	SCHAFFNER	CBL6112B S/N : 2611	JUN/2005
5	Attenuation	50Ω/6dB	JYE BAO	FAT-N (M-F) 001	JUL/2005
6	Cable	10m	SUHNER	RG214/U OS3-003	DEC/2004
7	Cable	14m	BELDEN	9913 OS3-001	DEC/2004
8	EMI 32 (software)	N/A	AUDIX	19991013-0923	N/A

Note : Items 1 ~ 7 were calibrated within period of 1 year.

2 EUT OPERATING CONDITION

2.1 Configure the EUT according to the **ANSI C63.4 - 2003**.

2.2 The radiated emission in the frequency range from 30 MHz - 1000 MHz was test in a horizontal and vertical polarization at HomeTek Lab' s open site III.

2.3 The crystal frequency of the EUT is 7.6 MHz.

2.4 Install DC 3V Battery to EUT. Connect audio cable of EUT to audio output port of DVD player.

2.5 Turn on all the power of EUT and peripheral.

2.6 DVD player send 1KHz audio to EUT. (Apply audio signal 0.5Vrms to audio R/L of EUT).

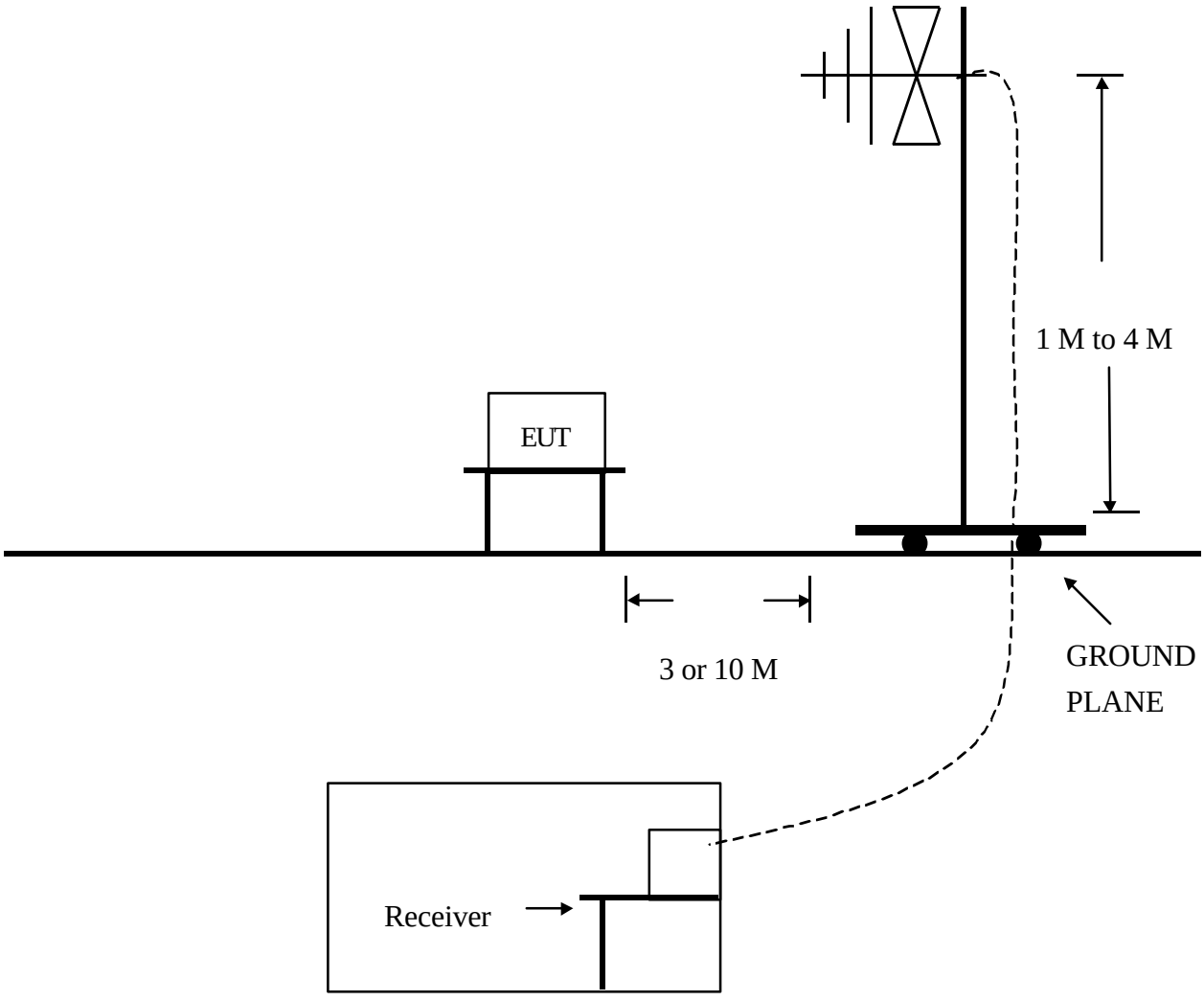
2.7 The EUT was operated in its normal operating mode for the purpose of the measurements.

2.8 The receiving antenna polarized horizontally was varied from 1 to 4 meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the ESMI test receiver or on the display of the spectrum analyzer. And also, each emission was to be maximized by changing the orientation of the EUT.

2.9 The photos of radiated test configuration, please refer to appendix A.

3 TEST SETUP

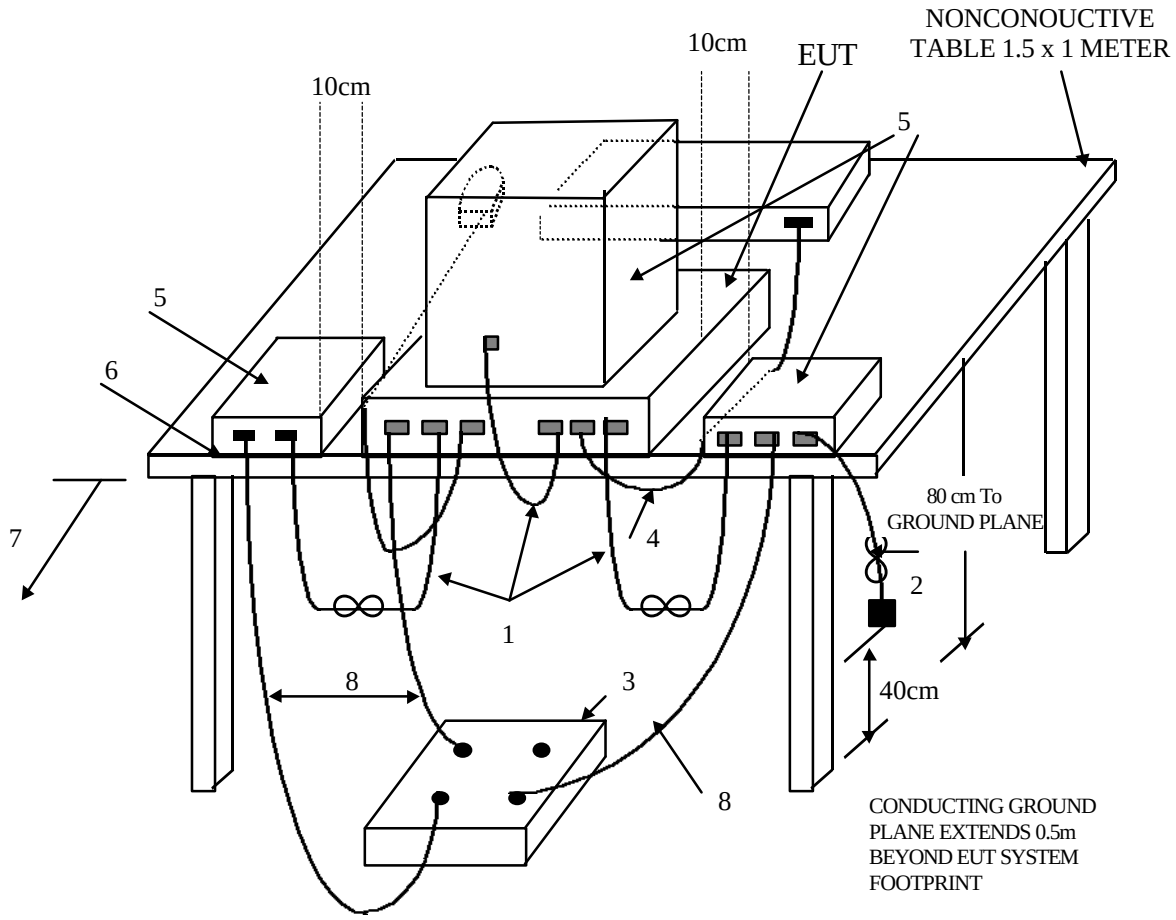
3.1 TEST SETUP OF OPEN SITE.



3.2 TEST SETUP OF EUT

ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE OF 9kHz TO 40 GHz

ANSI C63.4-2003



(Details for setup configuration, please refer to appendix A.)

LEGEND:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between ground plane and table.
2. I/O cables that are connected to a peripheral shall be bundled in center. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1m.
3. If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground plane with the receptacle flush with the ground plane.
4. Cables of hand-operated devices, such as keyboards, mouses, etc., have to be placed as close as possible to the controller.
5. Non-EUT components of EUT system being tested.
6. The rear of all components of the system under test shall be located flush with the rear of the table.
7. No vertical conducting wall used.
8. Power cords drape to the floor and are routed over to receptacle.

Test Configuration

Tabletop Equipment Radiated Emission

4 CONFIGURATION OF THE EUT

The EUT was configured according to **ANSI C63.4 - 2003**. All I/O ports were connected to the appropriate peripherals. All peripherals and cables are listed below (including internal device) :

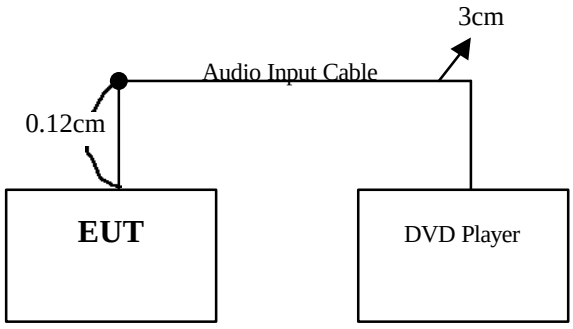


Figure 1

4.1 EUT

EUT Type	:	☐Proto Type ☑Engineer Type ☐Mass Production
Condition when received	:	☑Good ☐Damage : _____
Device	:	FM Transmitter
Applicant	:	UNION POWER INFORMATION CO., LTD.
Manufacturer	:	UNION POWER INFORMATION IND. CO., LTD.
Model Number	:	FMT-100
Serial Number	:	N/A
FCC ID	:	TNTFMT100
Audio Input Cable	:	Shielded, 0.12 m, Metal Type Connector
Power Cord	:	N/A
Power Supply Type	:	From Battery

4.2 PERIPHERALS

☑ DVD Player

Manufacturer	:	LG
Model Number	:	DS8421N
Serial Number	:	N/A
FCC ID	:	N/A
Data Cable	:	Shielded, 0.3 m, Connected to the Audio-input port
Power Cord	:	Un-Shielded, 1.8 m

4.3 REMARK : N/A

5 TEST PROCEDURE

5.1 The EUT was test according to **ANSI C63.4 – 2003 & FCC Part 15.35/15.209/15.239**.

5.2 The radiated test was performed at HomeTek Lab' s Open Site III.

5.3 This site is on file with the FCC laboratory division, test firm registration number: 713630, expiration Date : 2005/10/25.

5.4 For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies. The signal of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.

5.5 For emission frequencies measured below and above 1 GHz, set the spectrum analyzer or a 100KHz and 1MHz resolution bandwidth respectively for each frequency measured in item 5.4.

5.6 The receiving antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Move the antenna to a position where the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0^{o} to 360^{o} with a speed as slow as possible and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna positior again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

5.7 Repeat item 5.6 until all frequencies need to be measured were completed.

5.8 Repeat item 5.7 with search antenna in vertical polarized orientations.

5.9 Check seven frequencies of highest emission with varying the placement of cables (if any) associated with EUT to obtain the worst case and record the result.

5.10 The frequency range from 30 MHz to 1 GHz were investigated, the measurement were made at 3 meters, with a BI-log antenna.

6 LIMIT OF RADIATED EMISSION CLASS B

Frequency (MHz)	Measurement Distance	dBuV/m	uV/m
Fundamental frequency	3 (M)	48	250
30 - 88	3 (M)	40	100
88 - 216	3 (M)	43.5	150
216 - 960	3 (M)	46	200
Above 960	3 (M)	54	500

6.1 The tighter limit shall apply at the edge between two frequency bands.

6.1 Measurement distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or peripherals.

7 RESULT OF RADIATED EMISSION TEST (1)

7.1 The frequency range from 30 MHz to 1 GHz was investigated.

7.2 All readings below or equal 1 GHz are quasi-peak or peak values with resolution bandwidth of 120 KHz. The reading of fundamental frequency is peak or average values. With resolution bandwidth of 120KHz.

7.3 The measurements were made at 3 meters of HomeTek Lab' s open site III.

7.4 Temperature : 28 ℃, Humidity : 62 % RH.

7.5 Deviation form the test standards and rules : None.

7.6 Radiated Emission data : **Horizontal**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 88.10	39.11	47.90	-8.79	58.87	8.25	1.23	29.24	Peak
187.14	26.29	43.50	-17.21	45.41	8.62	1.81	29.55	Peak
254.96	25.29	46.00	-20.71	40.45	12.15	2.25	29.56	Peak
359.38	27.59	46.00	-18.41	39.44	14.63	2.79	29.27	Peak
418.29	20.06	46.00	-25.94	29.86	16.11	3.07	28.98	Peak
601.97	24.66	46.00	-21.34	30.15	18.71	3.82	28.02	Peak
727.48	26.34	46.00	-19.66	30.26	19.67	4.24	27.83	Peak
833.14	20.90	46.00	-25.10	22.76	20.51	4.67	27.04	Peak

※ Harmonic frequency of T x frequency (FM 88.1MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 833.14 MHz .
- Corrected Reading : (22.76) - (27.04) + (20.51) + (4.67) = 20.90 .

7.6 Radiated Emission data : **Vertical**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 88.10	39.57	47.90	-8.33	59.33	8.25	1.23	29.24	Peak
202.00	25.09	43.50	-18.41	44.18	8.63	1.90	29.62	Peak
267.22	26.61	46.00	-19.39	41.15	12.68	2.33	29.55	Peak
354.64	27.39	46.00	-18.61	39.39	14.50	2.78	29.28	Peak
440.58	21.06	46.00	-24.94	30.48	16.24	3.18	28.84	Peak
527.34	25.10	46.00	-20.90	31.82	18.02	3.59	28.33	Peak
614.00	24.36	46.00	-21.64	29.77	18.76	3.86	28.03	Peak
798.75	26.47	46.00	-19.53	28.88	20.10	4.56	27.07	Peak

※ Harmonic frequency of T x frequency (FM 88.1MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 798.75 MHz .
- Corrected Reading : (28.88) - (27.07) + (20.10) + (4.56) = 26.47 .

REMARK :
1. Model : FMT-100
2. Measuring mode : FM 88.1MHz Mode
3. "*", means this frequency is fundamental.
4. Result : **PASSED**

8 RESULT OF RADIATED EMISSION TEST (2)

8.1 The frequency range from 30 MHz to 1 GHz was investigated.

8.2 All readings below or equal 1 GHz are quasi-peak or peak values with resolution bandwidth of 120 KHz. The reading of fundamental frequency is peak or average values. With resolution bandwidth of 120KHz.

8.3 The measurements were made at 3 meters of HomeTek Lab' s open site III.

8.4 Temperature : 28 ℃, Humidity : 62 % RH.

8.5 Deviation form the test standards and rules : None.

8.6 Radiated Emission data : **Horizontal**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 88.50	40.40	47.90	-7.50	60.04	8.36	1.23	29.23	Peak
262.65	25.30	46.00	-20.70	39.93	12.63	2.30	29.56	Peak
352.71	27.73	46.00	-18.27	39.82	14.43	2.77	29.29	Peak
534.47	25.17	46.00	-20.83	31.71	18.15	3.61	28.30	Peak
615.13	24.14	46.00	-21.86	29.55	18.76	3.86	28.03	Peak
795.82	26.38	46.00	-19.62	28.81	20.11	4.55	27.09	Peak
883.88	24.28	46.00	-21.72	25.91	20.57	4.83	27.03	Peak
968.98	31.06	54.00	-22.94	31.60	21.26	4.93	26.73	Peak

※ Harmonic frequency of T x frequency (FM 88.5MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 968.98 MHz .
- Corrected Reading : (31.60) - (26.73) + (21.26) + (4.93) = 31.06 .

8.7 Radiated Emission data : **Vertical**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
88.50	38.82	47.90	-9.08	58.46	8.36	1.23	29.23	Peak
181.45	24.14	43.50	-19.36	43.50	8.38	1.78	29.52	Peak
271.71	23.46	46.00	-22.54	37.93	12.73	2.35	29.55	Peak
359.30	27.97	46.00	-18.03	39.82	14.63	2.79	29.27	Peak
397.12	26.53	46.00	-19.47	36.74	15.93	2.96	29.10	Peak
514.72	25.14	46.00	-20.86	32.27	17.71	3.55	28.39	Peak
601.85	24.14	46.00	-21.86	29.63	18.71	3.82	28.02	Peak
724.50	26.99	46.00	-19.01	31.04	19.58	4.22	27.85	Peak

※ Harmonic frequency of T x frequency (FM 88.5MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 724.50 MHz .
- Corrected Reading : (31.04) - (27.85) + (19.58) + (4.22) = 26.99 .

REMARK :
1. Model : FMT-100
2. Measuring mode : FM 88.5MHz Mode
3. "*", means this frequency is fundamental.
4. Result : **PASSED**

9 RESULT OF RADIATED EMISSION TEST (3)

9.1 The frequency range from 30 MHz to 1 GHz was investigated.

9.2 All readings below or equal 1 GHz are quasi-peak or peak values with resolution bandwidth of 120 KHz. The reading of fundamental frequency is peak or average values. With resolution bandwidth of 120KHz.

9.3 The measurements were made at 3 meters of HomeTek Lab' s open site III.

9.4 Temperature : 28 ℃, Humidity : 62 % RH.

9.5 Deviation form the test standards and rules : None.

9.6 Radiated Emission data : **Horizontal**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 88.90	40.69	47.90	-7.21	60.27	8.41	1.24	29.23	Peak
176.89	24.65	43.50	-18.85	44.04	8.34	1.76	29.49	Peak
264.90	26.75	46.00	-19.25	41.34	12.65	2.31	29.55	Peak
352.90	27.83	46.00	-18.17	39.92	14.43	2.77	29.29	Peak
404.98	22.05	46.00	-23.95	32.10	16.02	2.99	29.06	Peak
521.08	26.55	46.00	-19.45	33.50	17.84	3.57	28.36	Peak
606.94	24.71	46.00	-21.29	30.18	18.73	3.83	28.03	Peak
811.18	26.30	46.00	-19.70	28.53	20.22	4.60	27.05	Peak

※ Harmonic frequency of T x frequency (FM 88.91MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 811.18 MHz .
- Corrected Reading : (28.53) - (27.05) + (20.22) + (4.60) = 26.30 .

9.7 Radiated Emission data : **Vertical**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Read Level (dBuV)	ANT Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Detector
* 88.90	36.17	47.90	-11.73	55.75	8.41	1.24	29.23	Peak
134.00	24.37	43.50	-19.13	41.19	10.91	1.51	29.24	Peak
216.03	25.26	46.00	-20.74	44.57	8.30	1.99	29.60	Peak
296.98	27.08	46.00	-18.92	40.61	13.46	2.53	29.52	Peak
405.00	21.09	46.00	-24.91	31.14	16.02	2.99	29.06	Peak
606.99	23.38	46.00	-22.62	28.85	18.73	3.83	28.03	Peak
675.98	22.65	46.00	-23.35	27.74	18.95	4.04	28.08	Peak
830.97	25.24	46.00	-20.76	27.16	20.46	4.66	27.04	Peak

※ Harmonic frequency of T x frequency (FM 88.9MHz) is to low to be measured.

- Emission Level = Read Level – Preamp Factor + ANT Factor + Cable Loss.
- Sample Calculation for 830.97 MHz .
- Corrected Reading : (27.16) - (27.04) + (20.46) + (4.66) = 25.24 .

REMARK :

1. Model : FMT-100
2. Measuring mode : FM 88.9MHz Mode
3. "*", means this frequency is fundamental.
4. The radiated mission test was passed at minimum margin :
   Horizontal 88.90 MHz/ 40.69 dBuV/m, Antenna Height 3.8 Meter,
   Turn Table 175 degree, Test Mode : FM 88.9MHz Mode.
5. Result : **PASSED**

10 Emission Band Measurement

10.1 According to **FCC Part 15.239(a)** emissions from the intentional radiator shall be confined within a band 200KHz wide centered on the operating frequency. The 200KHz band shall lie wholly within the frequency range of 88MHz ~ 108MHz.

10.2 All reading are peak values with resolution bandwidth of 10KHz.

10.3 Temperature : 31 ℃, Humidity : 60 % RH.

10.4 Deviation form the test standards and rules : None.

10.5 The test data of Emission Band, please refer to appendix C.

PHOTO OF FCC ID LABEL

SAMPLE OF FCC ID LABEL :

FCC ID : TNTFMT100

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. And (2) this device must accept any interference that may cause undesired operation.

Please refer to appendix B photo of ID location.