

FCC Radio Test Report

FCC ID: 2AF26-TF3100

FCC 47 CFR Part 15 Subpart C

Product : Wireless FM Transmitter Radio Car Kit with
3.5mm Audio Plug and Car Charger

Trade Name : N/A

Model Number : TF3100

Issued for

Anavita LLC

2000 Mallory Ln, PMB113 Ste 130 Franklin, TN 37067 USA

Issued by

Shenzhen ATL Testing Technology Co., Ltd.

F/4, Building 10, Dayuan Industrial Zone, Xili Town, Nanshan District, Shenzhen,
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TEST RESULT CERTIFICATION

Product : Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger
Applicant..... : Anavita LLC
Address : 2000 Mallory Ln, PMB113 Ste 130 Franklin, TN 37067 USA
Manufacturer..... : Shenzhen X-WORLD Technology Co., LTD
Address : Rm2607B, International Culture Building, Shennan Road, Futian District, Shenzhen, Guangdong Province, China.
Model No. : TF3100
Standards : FCC Part 15 Subpart C (15.239)
Test Method..... : ANSI C63.10: 2014

The above equipment has been tested by Shenzhen ATL Testing Technology Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Test..... :

Date of receipt of test item 2015-09-25

Date(s) of performance of test 2015-09-26 to 2015-10-08

Test Result..... : Pass

Testing by	:	<u>Sifeifei</u>	Date	:	<u>2015-09-30</u>
		(Si feifei)			
Check by	:	<u>Xie Lingling</u>	Date	:	<u>2015-10-08</u>
		(Xie Lingling)			
Approved by	:	<u>Xu Peng</u>	Date	:	<u>2015-10-08</u>
		(Xu Peng)			

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1. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part 15 Subpart C (15.239)			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Conducted Emission	PASS	
15.209	Radiated Emissions	PASS	
15.239	Fundamental and Band Edge	PASS	
15.239	20 dB Bandwidth	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) The test results of this report relate only to the tested sample(s) identified in this report.

1.1 TEST FACILITY

Shenzhen ATL Testing Technology Co., Ltd.

Add. : F/4, Building 10, Dayuan Industrial Zone, Xili Town, Nanshan District, Shenzhen, China

FCC Registration No.: 802773

IC Registration No.: 20131

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

A. Conducted Emission :

The measurement uncertainty is evaluated as ± 3.2 dB.

B. Radiated Measurement :

The measurement uncertainty is evaluated as ± 3.7 dB.

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger
Model Name	TF3100
Additional Model Number(s)	N/A
Model Difference	N/A
Frequency Range	88.1~107.9 MHz
Modulation Type	FM
Antenna Type	Integral Antenna
Power Source	DC Powered by DC power supply.
Power Rating	DC 12V from DC Power.
Remark	More details EUT technical specifications, please refer to the User's Manual.

Note:

- (1) More information please refer to the user manual.
- (2) Channel List

Frequency Band	Channel No.	Frequency
88.1~107.9MHz	1	88.1 MHz
	2	88.3 MHz
	:	:
	50	97.9 MHz
	51	98.1 MHz
	52	98.3 MHz
	:	:
	99	107.7 MHz
	100	107.9 MHz

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	FM TX Mode
Mode 2	TX 88.1MHz Mode
Mode 3	TX 98.1MHz Mode
Mode 4	TX 107.9MHz Mode

For Conducted Test	
Final Test Mode	Description
Mode 1	FM TX Mode

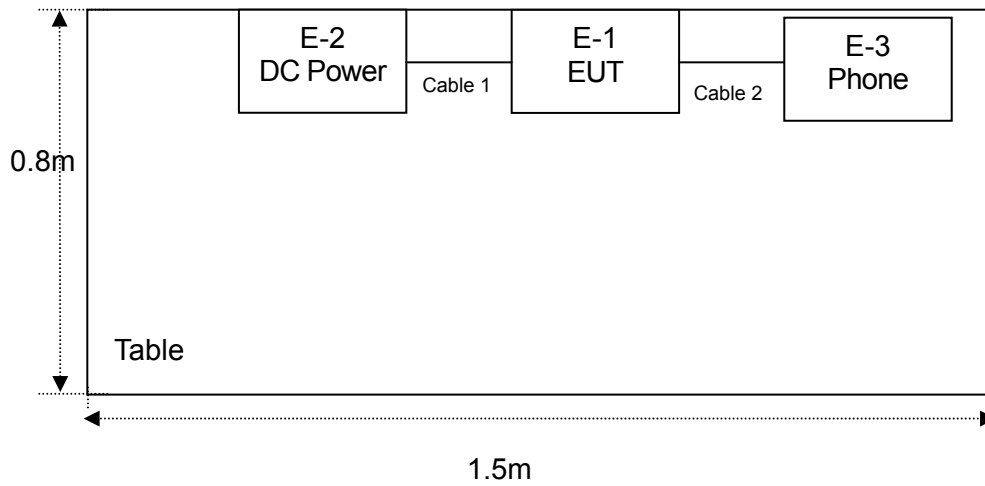
For Radiated Test	
Final Test Mode	Description
Mode 2	TX 88.1MHz Mode
Mode 3	TX 98.1MHz Mode
Mode 4	TX 107.9MHz Mode

Note:

- (1) Software used to control the EUT for staying in continuous transmitting mode was programmed. After verification, all tests were carried out with the worst case test modes as shown below.
- (2) By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

2.3 DESCRIPTION OF TEST SETUP

Radiated Emission



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	DOC/ID	Note
E-1	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	N/A	TF3100	FCC ID	EUT
E-2	Battery	UNION	N100	/	
E-3	Phone	SAMSUNG	S4	FCC ID	

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	15cm	
2	NO	NO	20cm	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 EUT Test Condition

The Phone is playing a typical MP3 song and the Player is adjusted to maximum volume.

3. CONDUCTED EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Quasi-peak	Average
	dBuV	dBuV
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

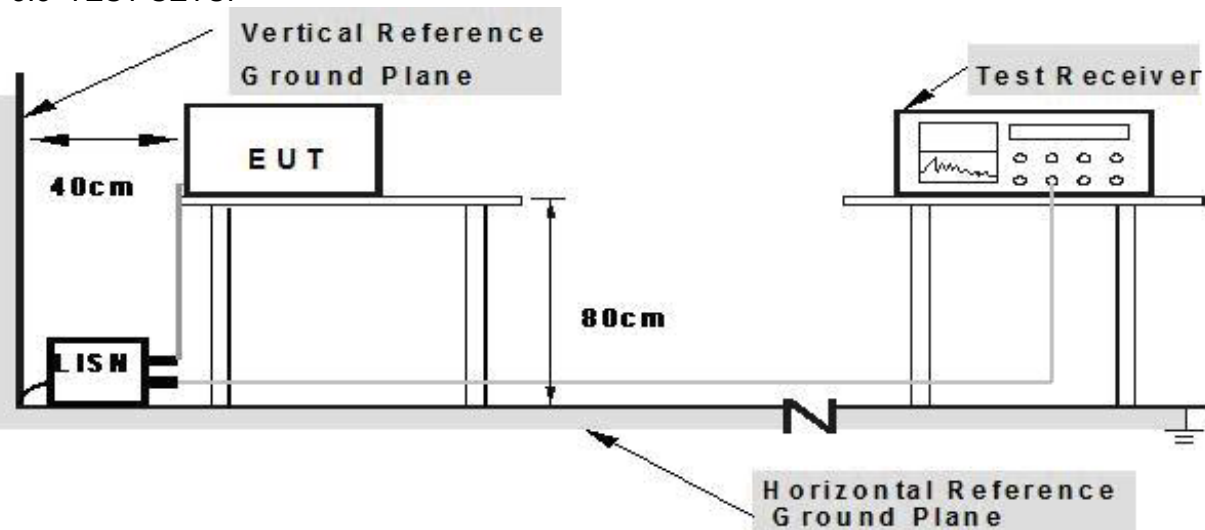
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 TEST SETUP



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

3.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
LISN	R&S	NSLK81	8126466	Jul. 05, 2015	Jul. 04. 2016	1 year
LISN	R&S	NSLK81	8126487	Dec. 24, 2014	Dec. 23, 2015	1 year
50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jul. 05, 2015	Jul. 04. 2016	1 year
Test Cable	N/A	C01	N/A	Jul. 05, 2015	Jul. 04. 2016	1 year
Test Cable	N/A	C02	N/A	Jul. 05, 2015	Jul. 04. 2016	1 year
Test Cable	N/A	C03	N/A	Jul. 05, 2015	Jul. 04. 2016	1 year
EMI Test Receiver	R&S	ESCI	1166.595	Jul. 05, 2015	Jul. 04. 2016	1 year
Passive Voltage Probe	ESH2-Z3	R&S	100196	Jul. 05, 2015	Jul. 04. 2016	1 year

3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.6 TEST RESULTS

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Terminal:	Line
Test Mode :	FM TX Mode		
Test Voltage :	" N/A" denotes test is not applicable in this Test Report.		

Remark: This EUT is excused from investigation of conducted emission, for it is powered by DC 12V battery only. According to §15.207 (d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Terminal:	Neutral
Test Mode :	FM TX Mode		
Test Voltage :	" N/A " denotes test is not applicable in this Test Report.		

Remark: This EUT is excused from investigation of conducted emission, for it is powered by DC 12V battery only. According to §15.207 (d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

4. RADIATED EMISSION MEASUREMENT

4.1 RADIATED EMISSION LIMIT (Frequency Range 9KHz-1000MHz)

20 dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) and RSS-General limit in the table below has to be followed.

FREQUENCY (MHz)	Field Strength (uV/m at meter)	Measurement Distance (meters)
0.009 -0.490	2400/F(KHz)	300
0.490 -1.705	24000/F(KHz)	30
1.705 -30.0	30	30
30 -88	100	3
88 -216	150	3
216~960	200	3
Above 960	500	3

RADIATED EMISSION LIMITS (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m)(at 3 M)		Class B (dBuV/m)(at 3 M)	
	Peak	Average		Peak
Above 1000	80	60	74	54

Note:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

The following table is the setting of the receiver

Receiver Parameter	Setting
Attenuation	Auto
Start Frequency~ Stop Frequency	9kHz~150kHz/ RB 200Hz for QP
Start Frequency~ Stop Frequency	150kHz~30MHz/ RB 9kHz for QP
Start Frequency~ Stop Frequency	30MHz~1000MHz/ RB120kHz for QP

The following table is the setting of the spectrum

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10 th carrier harmonic
RB/ VB (emission in restricted band)	1MHz/ 3 MHz for Peak, 1MHz/ 10Hz for Average

4.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

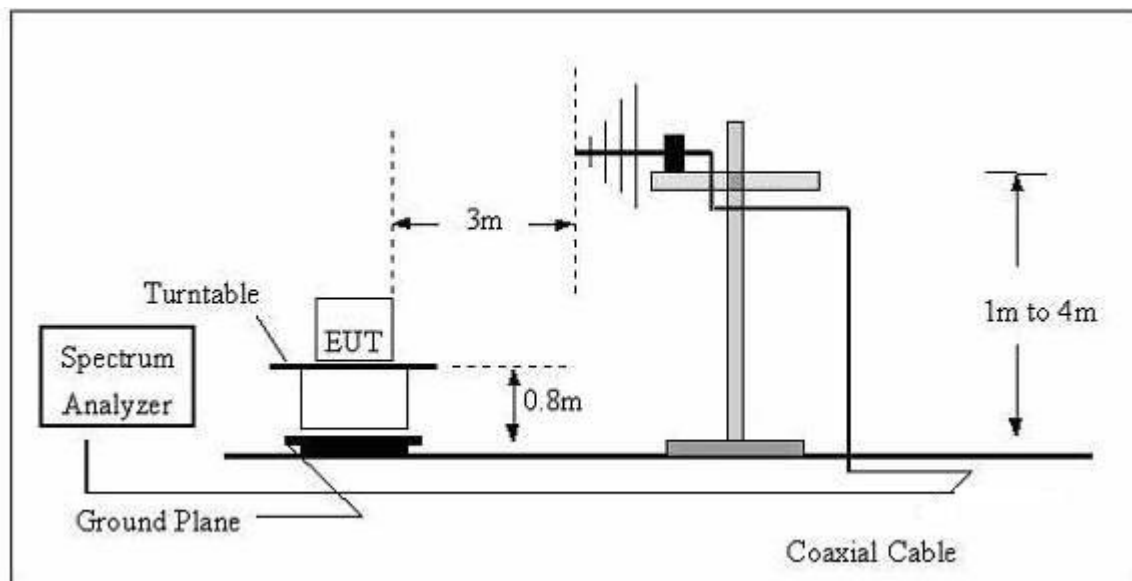
Note:

Both horizontal and vertical antenna polarities were tested.

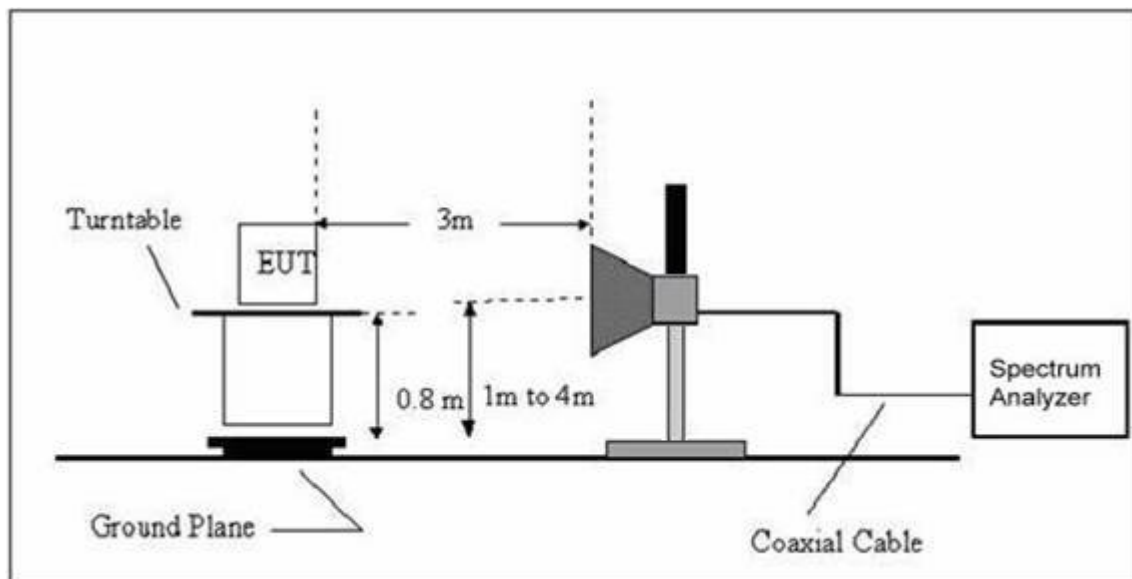
And performed pretest to three orthogonal axis. The worst case emissions were reported.

4.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



4.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
Broadband Antenna	R&S	VULB 9168	VULB 9168-456	Jul. 05, 2015	Jul. 04. 2016	1 year
Test Cable	N/A	R-01	N/A	Dec. 24, 2014	Dec. 23, 2015	1 year
Test Cable	N/A	R-02	N/A	Dec. 24, 2014	Dec. 23, 2015	1 year
EMI Test Receiver	R&S	ESCI	101324	Jul. 05, 2015	Jul. 04. 2016	1 year
Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
Turn Table	EM	SC100	060531	N/A	N/A	N/A
50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 05, 2015	Jul. 04. 2016	1 year
Spectrum Analyzer	R&S	FSP40	100154	Jul. 05, 2015	Jul. 04. 2016	1 year
Horn Antenna	R&S	HF906	10029	Jul. 05, 2015	Jul. 04. 2016	1 year
Amplifier	EM	EM-30180	060538	Jul. 05, 2015	Jul. 04. 2016	1 year

4.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

4.6.1 TEST RESULTS (Bellow 1GHz)

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (88.1MHz) TX Mode		
Test Voltage :	DC 12V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	94.9900	45.96	-13.42	32.54	43.50	-10.96	peak
2 *	179.3800	49.42	-15.80	33.62	43.50	-9.88	peak
3	264.7400	42.94	-12.70	30.24	46.00	-15.76	peak
4	358.8300	44.62	-10.11	34.51	46.00	-11.49	peak
5	453.8900	43.99	-8.74	35.25	46.00	-10.75	peak
6	515.9700	38.58	-7.53	31.05	46.00	-14.95	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (88.1MHz) TX Mode		
Test Voltage :	DC 12V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	108.5700	45.92	-13.87	32.05	43.50	-11.45	peak
2 *	186.1700	48.30	-15.16	33.14	43.50	-10.36	peak
3	260.8600	45.13	-12.81	32.32	46.00	-13.68	peak
4	312.2700	45.76	-11.45	34.31	46.00	-11.69	peak
5	374.3500	43.69	-9.95	33.74	46.00	-12.26	peak
6	442.2500	43.83	-8.78	35.05	46.00	-10.95	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (98.1MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	60.0700	45.70	-13.59	32.11	40.00	-7.89	peak
2		124.0900	49.60	-16.33	33.27	43.50	-10.23	peak
3		149.3100	51.69	-17.53	34.16	43.50	-9.34	peak
4		167.7400	50.15	-16.65	33.50	43.50	-10.00	peak
5		228.8500	48.86	-13.45	35.41	46.00	-10.59	peak
6		257.9500	47.44	-12.82	34.62	46.00	-11.38	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (98.1MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		97.9000	45.34	-13.23	32.11	43.50	-11.39	peak
2		148.3400	50.72	-17.55	33.17	43.50	-10.33	peak
3		184.2300	49.60	-15.34	34.26	43.50	-9.24	peak
4		221.0900	46.32	-13.85	32.47	46.00	-13.53	peak
5		287.0500	47.07	-11.88	35.19	46.00	-10.81	peak
6	*	368.5300	47.14	-10.00	37.14	46.00	-8.86	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (107.9MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	62.9800	47.35	-14.74	32.61	40.00	-7.39	peak
2		104.6900	47.57	-13.52	34.05	43.50	-9.45	peak
3		147.3700	51.19	-17.57	33.62	43.50	-9.88	peak
4		207.5100	48.61	-14.56	34.05	43.50	-9.45	peak
5		252.1300	46.89	-12.78	34.11	46.00	-11.89	peak
6		322.9400	44.26	-11.19	33.07	46.00	-12.93	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (107.9MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	58.1300	46.09	-13.44	32.65	40.00	-7.35	peak
2		94.9900	47.54	-13.42	34.12	43.50	-9.38	peak
3		127.9700	49.92	-16.86	33.06	43.50	-10.44	peak
4		182.2900	50.72	-15.53	35.19	43.50	-8.31	peak
5		199.7500	48.95	-14.68	34.27	43.50	-9.23	peak
6		230.7900	48.71	-13.35	35.36	46.00	-10.64	peak

Remark:

Factor = Antenna Factor + Cable Loss.

5. FIELD STRENGTH OF FUNDAMENTAL AND BAND EDGE EMISSIONS MEASUREMENT

5.1 LIMITS

According to 15.239 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	
88 to 108	Peak	Average
	67.96	47.96

Band edge emissions outside of the frequency bands shown in below table.

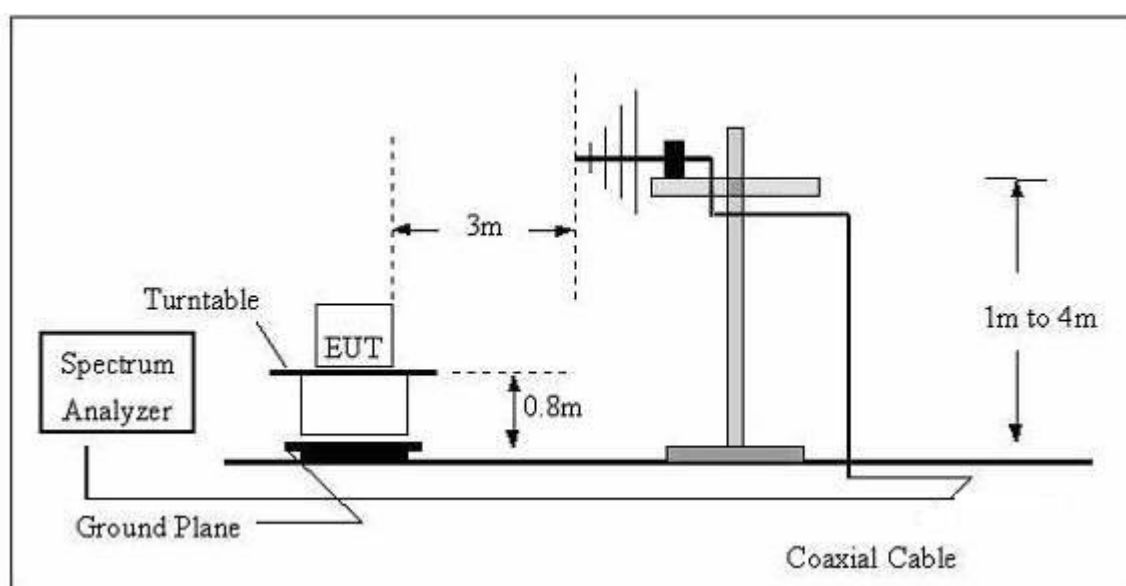
Outside Frequency Band Edge	Limit (dBuV/m) at 3m
Below 88 MHz	40.0 (QP)
Above 108 MHz	43.5 (QP)

5.2 MEASUREMENT INSTRUMENTS AND SETTING

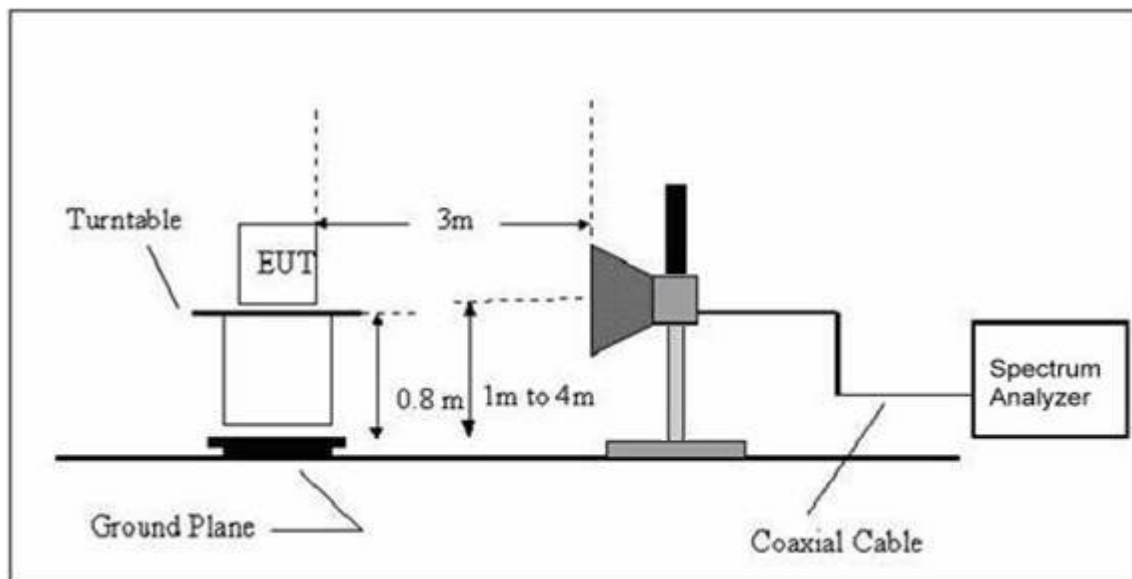
Receiver Parameter	Setting
Center Frequency	Fundamental Frequency
RBW	120 KHz
Detector	AV or Peak

5.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



5.3 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
Broadband Antenna	R&S	VULB 9168	VULB 9168-456	Jul. 05, 2015	Jul. 04. 2016	1 year
Test Cable	N/A	R-01	N/A	Dec. 24, 2014	Dec. 23, 2015	1 year
Test Cable	N/A	R-02	N/A	Dec. 24, 2014	Dec. 23, 2015	1 year
EMI Test Receiver	R&S	ESCI	101324	Jul. 05, 2015	Jul. 04. 2016	1 year
Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
Turn Table	EM	SC100	060531	N/A	N/A	N/A
50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 05, 2015	Jul. 04. 2016	1 year
Spectrum Analyzer	R&S	FSP40	100154	Jul. 05, 2015	Jul. 04. 2016	1 year
Horn Antenna	R&S	HF906	10029	Jul. 05, 2015	Jul. 04. 2016	1 year
Amplifier	EM	EM-30180	060538	Jul. 05, 2015	Jul. 04. 2016	1 year

5.4 EUT OPERATING CONDITIONS

The Phone is playing a typical MP3 song and the Player is adjusted to maximum volume.

5.5 TEST RESULTS

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (88.1MHz) TX Mode		
Test Voltage :	DC 12V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	88.0000	51.30	-22.58	28.72	40.00	-11.28	peak
2	88.1010	68.40	-22.53	45.87	67.96	-22.09	peak
3 *	88.1010	66.19	-22.53	43.66	47.96	-4.30	AVG

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (88.1MHz) TX Mode		
Test Voltage :	DC 12V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	98.0950	67.70	-21.99	45.71	67.96	-22.25	peak
2 *	98.0950	64.42	-21.99	42.43	47.96	-5.53	AVG

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (98.1MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB Detector
1		98.0970	72.25	-26.48	45.77	67.96	-22.19 peak
2	*	98.0970	69.53	-26.48	43.05	47.96	-4.91 AVG

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (98.1MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB Detector
1		98.0950	51.72	-13.22	38.50	67.96	-29.46 peak
2	*	98.0950	49.23	-13.22	36.01	47.96	-11.95 AVG

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Horizontal
Test Mode :	FM (107.9MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		107.8950	72.25	-26.49	45.76	67.96	-22.20	peak
2	*	107.8950	70.11	-26.49	43.62	47.96	-4.34	AVG
3		108.0000	55.25	-26.49	28.76	43.50	-14.74	peak

Remark:

Factor = Antenna Factor + Cable Loss.

EUT :	Wireless FM Transmitter Radio Car Kit with 3.5mm Audio Plug and Car Charger	Model Name. :	TF3100
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Ant. Pol.:	Vertical
Test Mode :	FM (107.9MHz) TX Mode		
Test Voltage :	DC 12V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		107.8950	67.57	-21.82	45.75	67.96	-22.21	peak
2	*	107.8950	65.30	-21.82	43.48	47.96	-4.48	AVG
3		108.0000	43.72	-21.81	21.91	43.50	-21.59	peak

Remark:

Factor = Antenna Factor + Cable Loss.

6. OCCUPIED BANDWIDTH MEASUREMENT

6.1 LIMITS

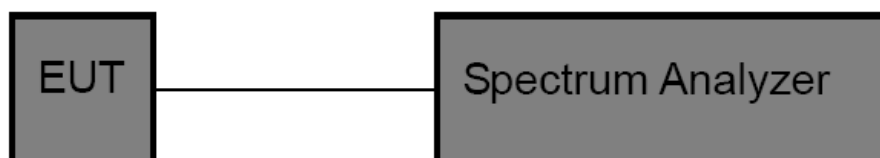
FCC Part 15.239, subpart C	
Frequency Range (MHz)	88~108MHz
Limits	The 200kHz band shall lie wholly within the frequency range of 88 to 108MHz

6.2 TEST PROCEDURE

The EUT was directly connected to the power meter and antenna output port as show in the block diagram as bellow.

Spectrum Parameters	Setting
Attenuation	Auto
Span	> 20dB Bandwidth
RBW	10 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

6.3 TEST SETUP



6.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
Spectrum Analyzer	R&S	FSP40	100154	Jul. 05, 2015	Jul. 06. 2016	1 year

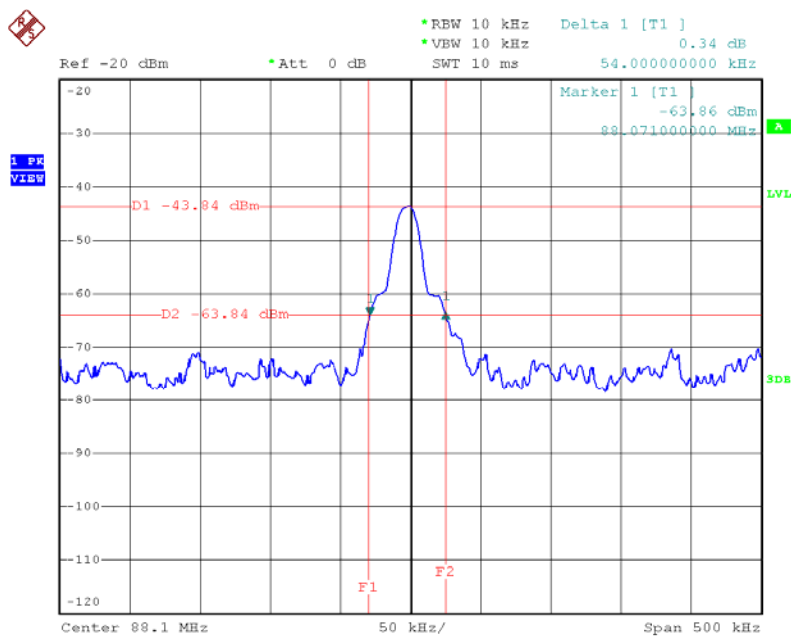
6.5 EUT OPERATING CONDITIONS

The Phone is playing a typical MP3 song and the Player is adjusted to maximum volume.

6.6 TEST RESULTS

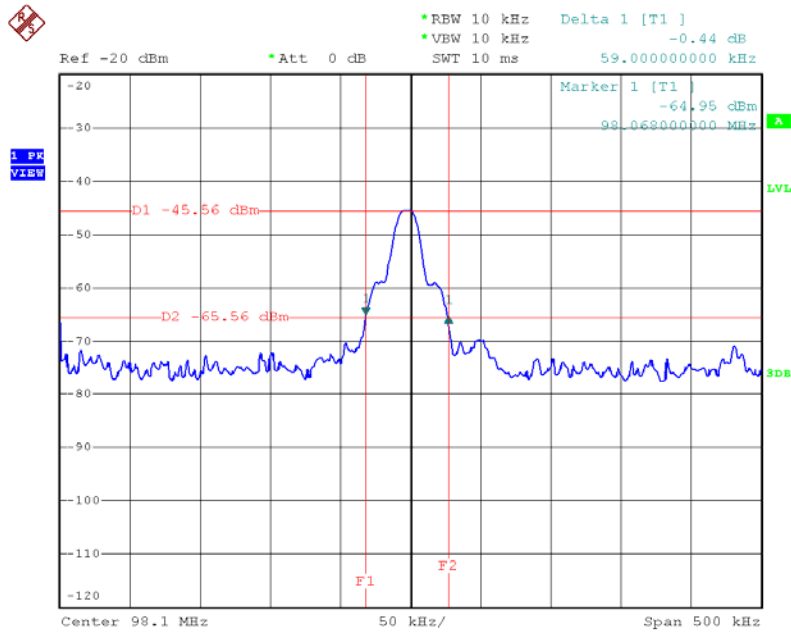
20 dB Bandwidth			
Frequency (MHz)	20dB Bandwidth (kHz)	99% OBW (kHz)	Limit
88.1	86.00	54.00	<=200 kHz
98.1	106.00	59.00	
107.9	76.00	65.00	

88.1 MHz



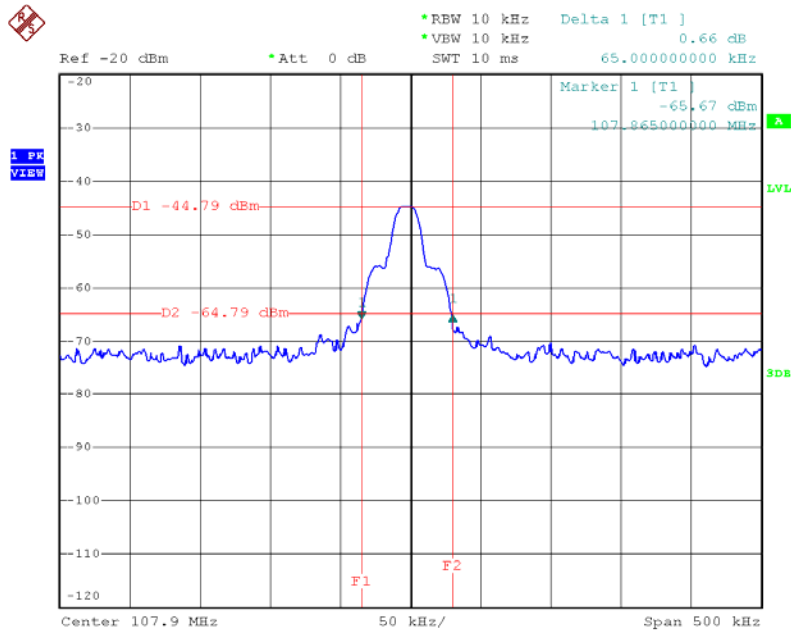
Date: 14.OCT.2015 15:42:31

98.1 MHz



Date: 14.OCT.2015 15:41:11

107.9 MHz



Date: 14.OCT.2015 15:47:33

7. ANTENNA REQUIREMENT

7.1 REQUIREMENT

Antenna Requirement (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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
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7.2 ANTENNA CONNECTOR CONSTRUCTION

The EUT antenna is a Integral Antenna.
It complies with the standard requirement.