FCC PART 15.239

EMI MEASUREMENT AND TEST REPORT

For

SHENZHEN DSUS TECHNOLOGY CO., LTD

5/F Bldg 1, Laobing Industrial Park, 44 Tiezai Rd., Baoan, Shenzhen, China

FCC ID: AOU-DSVZ

January 16, 2012

This Report Concerns: Original Report	Equipment Type: Car DVD Player
Test Engineer:	Eric Li
Report No.:	BST12010043Y-1ER-3
Receive EUT Date/Test Date:	January 9, 2012/ January 10-15, 2012
Reviewed By:	Christina
Prepared By:	**Shenzhen BST Technology Co.,Ltd.** 3F,Weames Technology Building, No. 10 Kefa Road, Science Park, Nanshan District,Shenzhen,Guangdong,China Tel: 0755-26747751～3 Fax: 0755-26747751～3 ext.826

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1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.

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Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

Test Facility -
The test site used to collect the radiated data is located on the address of
SinTek Laboratory Co.,Ltd.
(FCC Registered Test Site Number: 963441) on
No.7, Xinshidai Industrial, Guantian Village, Shiyan Town, Baoan District, Shenzhen, Guangdong 518108, China
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Description	:	Car DVD Player
Applicant	:	SHENZHEN DSUS TECHNOLOGY CO., LTD 5/F Bldg 1, Laobing Industrial Park, 44 Tiezai Rd., Baoan, Shenzhen, China
Model Number	:	DS-X10FD, DS-X9FD, DS-X116FD, DS-X12FD, DS-900D, DS-999D, VZ102D, VZ9D, VZ11D
Trade Name	:	N/A
Frequency	:	88.1-89.1MHz (step 0.2MHz)
Power Supply	:	DC 12V

2.2. Block Diagram of EUT Configuration

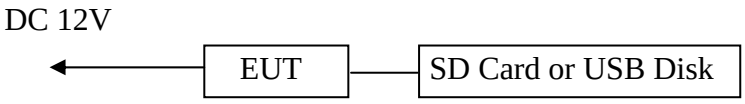


Figure 1 EUT Setup

2.3. Support Equipment List

Name	Model No	S/N	Manufacturer	Used "√"
USB disk	2G	N/A	Kington	√
SD card	2G	N/A	Kington	√

2.4. Test Conditions

Temperature: 20~25℃
Relative Humidity: 50~63 %

3. FCC ID LABEL

FCC ID: AOU-DSVZ

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 received, including interference that may cause undesired operation.

Label Location on EUT

EUT View/ FCC ID Label Location

4. TEST RESULTS SUMMARY

FCC 15 Subpart C, Paragraph 15.239

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	N/A
Section 15.239(c) Section 15.209	Harmonics and Spurious Radiated Emission	Compliant
Section 15.239(b)	Fundamental Radiated Emission	Compliant
Section 15.239(a)	Occupied Bandwidth	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: “N/A” means “Not applicable”.

Statement: All testing was performed using the test procedures found in ANSI C63.4-2003.

Modifications

No modification was made.

5. TEST EQUIPMENT USED

Equipment/Facilities	Manufacturer	Model #	Serial no.	Date of Cal.	Cal. Interval
Cable	Resenberger	N/A	NO.1	Mar 10，2011	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar 10，2011	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar 10，2011	1 Year
LISN	Rohde＆Schwarz	ESH3-Z5	100305	Mar 10，2011	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar 10，2011	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESP13	100180	Oct.11,2011	1 Year
Spectrum Analyzer	Rohde＆Schwarz	FSP40	100273	Sep.10,2011	1 Year
3m Semi-Anechoic Chamber	Albatross Projects	9m×6m×6m	N/A	Feb.20,2011	1 Year
Signal Generator	FLUKE	PM5418 + Y/C	LO747012	Feb.20,2011	1 Year
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.20,2011	1 Year
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan.30,2011	1 Year
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Sep.22,2011	1 Year
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-564	Sep.22,2011	1 Year
Ultra Broadband Antenna	Rohde＆Schwarz	HL-562	100110	June.15,2011	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100196	Oct.11,2011	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100197	Oct.11,2011	1 Year
Pulse Limiter	Rohde＆Schwarz	ESH3-Z2	N/A	N/A	N/A
Power Meter	Rohde＆Schwarz	NRVD	100041	Feb.20,2011	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESCS30	100003	Feb.20,2011	1 Year
Coaxial Cable with N-connectors	SCHWARZBECK	AK9515H	95549	Sep.22,2011	1 Year
Radio Communication Test Set	Rohde＆Schwarz	CMS 54	846621/024	Feb.20,2011	1 Year
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.20,2011	1 Year
Absorbing clamp	Rohde＆Schwarz	MDS-21	N/A	Oct.11,2011	1 Year

6. ANTENNA REQUIREMENT

6.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

6.2. Antenna Connected Construction

According to § 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.

Antenna is formed by a short copper wire soldered on the PCB. The antenna is permanently attached. Refer to the product photo.

6.3. Result

Compliance

7. CONDUCTED POWER LINE TEST

7.1. Test Equipment

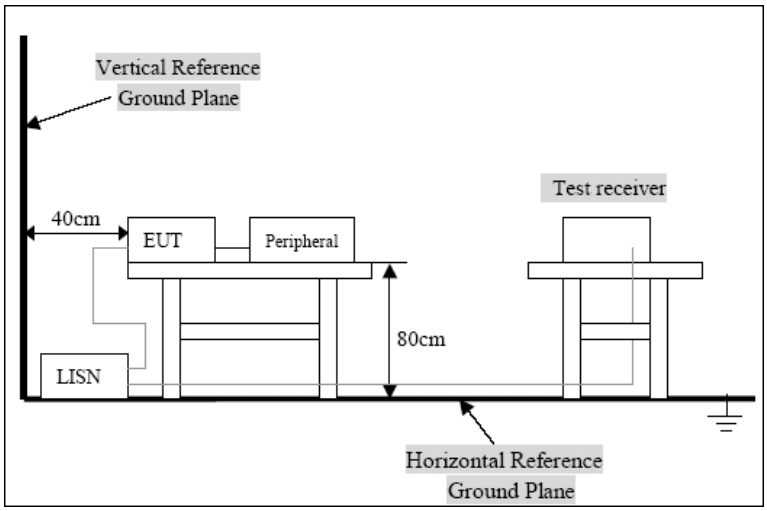
Please refer to section 5 this report.

7.2. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.).This provides a 50ohm/50uh coupling inpedance for the measuring equipment.The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uh coupling inpedance with 50ohm termination.

Both sides of A.C. Line are check for maximum conducted interference.In order to find the maximum emission,the relative positions of equipment and al of the interface cables must be changed according to ASIN C63.4:2003 on conducted measurement .Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9Khz.

7.3. Test Setup



For the actual test configuration,Please refer to the related items-Photos of testing

7.4. Conducted Power line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)		
Frequency Range (MHZ)	Class A QP/AV	Class B QP/AV
0.15-0.5	79/66	65-56/56-46
0.5-5.0	73/60	56-46
5.0-3.0	73/60	60-50

Note: In the above table, the tighter limit applies at the band edges.

7.5. Conducted Power Line Test Result

N/A.

There is no connection to AC mains. Therefore, the test is not applicable and skipped.

8. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15 SECTION 15.239(B)

8.1. Test Equipment

Please refer to section 5 this report.

8.2. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

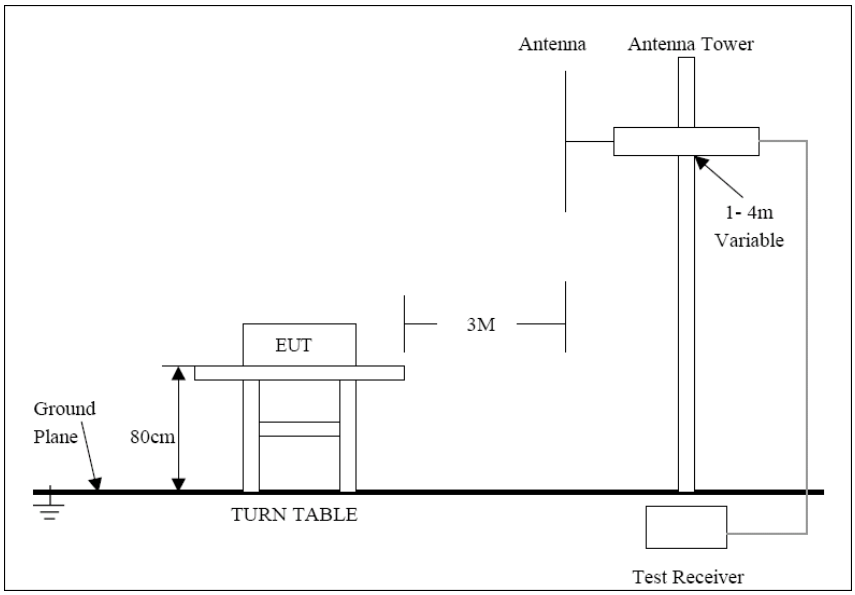
The bandwidth of test receiver is set at 120kHz.

The final measurement are performed with Peak and Average detector.

Through three orthogonal axes to determine which attitude and equipment arrangement produces the highest emission relative to the limit.

Let the EUT work in TX modes [Connect EUT use USB disk and SD card playing typical audio signal (‘Highway Blues’ from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-89.1MHz. We are select 88.1M, 88.7M, 89.1MHz TX frequency to transmit.

8.3. Radiated Test Setup



For the accrual test configuration,pleas refer to the related items-photos of Testing.

8.4. Radiated Emission Limit

The field strength of any emission within the permitted 200kHz band shall not exceed 250microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.

8.5. Radiated Emission Test Result

Pass

Test Mode: TX 88.1MHz with USB disk

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
88.1090	30.64	32.80	13.75	44.39	46.55	48	68	-3.61	-21.45	Horizontal
88.1090	30.89	33.08	13.73	44.62	46.81	48	68	-3.38	-21.19	Vertical

Test Mode: TX 88.7MHz with USB disk

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
88.7090	30.42	32.60	13.85	44.27	46.45	48	68	-3.73	-21.55	Horizontal
88.7090	30.85	32.96	13.65	44.50	46.61	48	68	-3.50	-21.39	Vertical

Test Mode: TX 89.1MHz with USB disk

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
89.1090	30.39	32.50	13.91	44.30	46.41	48	68	-3.70	-21.59	Horizontal
89.1090	30.54	32.72	13.68	44.22	46.40	48	68	-3.78	-21.60	Vertical

Note:

1. Measurement was performed with modulated signal with average detector and peak detector.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
   Result = Reading + Corrected Factor
   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

Test Mode: TX 88.1MHz with SD card

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
88.1090	30.40	32.59	13.75	44.15	46.34	48	68	-3.85	-21.66	Horizontal
88.1090	30.50	32.76	13.73	44.23	46.49	48	68	-3.77	-21.51	Vertical

Test Mode: TX 88.7MHz with SD card

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
88.7090	30.18	32.40	13.85	44.03	46.25	48	68	-3.97	-21.75	Horizontal
88.7090	30.47	32.64	13.65	44.12	46.29	48	68	-3.88	-21.71	Vertical

Test Mode: TX 89.1MHz with SD card

Frequency	Reading(dBμV/m)		Factor (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin (dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
89.1090	30.10	32.23	13.91	44.01	46.14	48	68	-3.99	-21.86	Horizontal
89.1090	30.59	32.76	13.68	44.27	46.44	48	68	-3.73	-21.56	Vertical

Note:

1. Measurement was performed with modulated signal with average detector and peak detector.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
   Result = Reading + Corrected Factor
   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

9. HARMONICS AND SPURIOUS RADIATED EMISSION FOR FCC PART 15 SECTION 15.239(C)

9.1. Test Equipment

Please refer to section 5 this report.

9.2. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

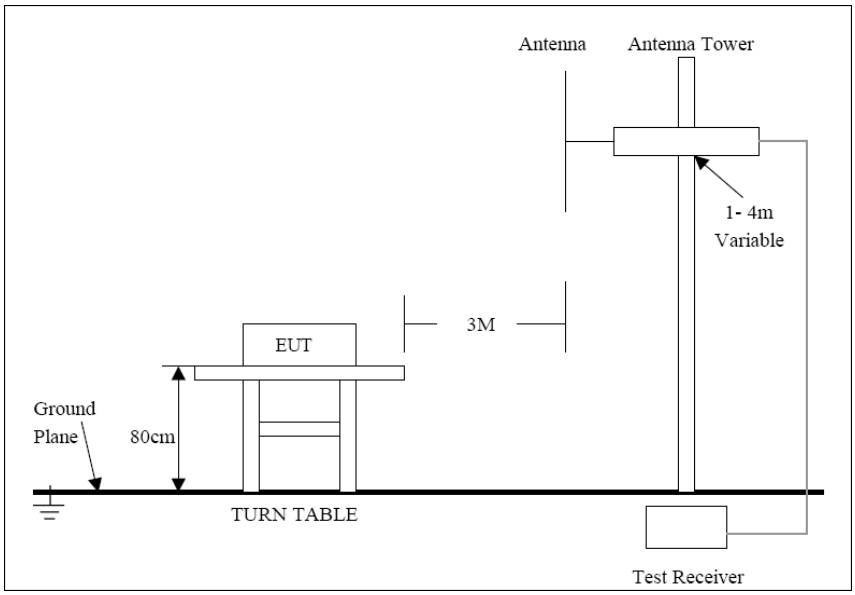
The frequency range from 9kHz to 1000MHz is checked.

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector. The final measurement for frequencies above 1000MHz is performed with Peak detector and Average detector.

Through three orthogonal axes to determine which attitude and equipment arrangement produces the highest emission relative to the limit.

Let the EUT work in TX modes [Connect EUT use USB disk and SD card playing typical audio signal (‘Highway Blues’ from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-89.1MHz. We are select 88.1M, 88.7M, 89.1MHz TX frequency to transmit.

9.3. Radiated Test Setup



For the accrual test configuration,pleas refer to the related items-photos of Testing.

9.4. Radiated Emission Limit

The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

Radiation Emission Measurement Limits According to Section 15.209

Frequency (MHz)	Limit			
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	Measurement distance (m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
0.009 - 0.490	2400/F(kHz)	/	300	
0.490 - 1.705	24000/F(kHz)	/	30	
1.705-30	30	29.5	30	
30 - 88	100	40	3	
88 - 216	150	43.5	3	
216 - 960	200	46	3	
Above 960	500	54	3	

Note: (1) RF Voltage (dBuV)=20 log Voltage(uV)
(2) In the Above Table,the tighter limit applies at the band edges.
(3) Distaqnce refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

9.5. Radiated Emission Test Result

Pass

Test Mode: TX 88.1MHz with USB disk

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	176.2130	24.71	15.76	40.47	43.50	-3.03
Horizontal	264.3190	24.35	18.66	43.01	46.00	-2.99
Horizontal	342.0020	22.88	20.11	42.99	46.00	-3.01
Vertical	176.2130	23.86	15.76	39.62	43.50	-3.88
Vertical	264.3190	24.39	18.66	43.05	46.00	-2.95
Vertical	320.6440	23.46	19.36	42.82	46.00	-3.18

Test Mode: TX 88.7MHz with USB disk

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	177.4149	24.12	15.78	39.90	43.50	-3.60
Horizontal	266.1123	24.63	18.28	42.91	46.00	-3.09
Horizontal	342.0020	22.44	20.11	42.55	46.00	-3.45
Vertical	177.4149	24.08	15.78	39.86	43.50	-3.64
Vertical	266.1123	24.17	18.28	42.45	46.00	-3.55
Vertical	320.6440	23.18	19.36	42.54	46.00	-3.46

Test Mode: TX 89.1MHz with USB disk

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	178.2136	24.30	15.89	40.19	43.50	-3.31
Horizontal	267.3204	24.78	18.25	43.03	46.00	-2.97
Horizontal	342.0020	22.36	20.11	42.47	46.00	-3.53
Vertical	178.2136	23.79	15.84	39.63	43.50	-3.87
Vertical	267.3204	24.60	18.25	42.85	46.00	-3.15
Vertical	320.6440	23.64	19.36	43.00	46.00	-3.00

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
   Result = Reading + Corrected Factor
   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

Test Mode: TX 88.1MHz with SD card

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	176.2130	24.15	15.76	39.91	43.50	-3.59
Horizontal	264.3190	24.26	18.66	42.92	46.00	-3.08
Horizontal	342.0020	22.67	20.11	42.78	46.00	-3.22
Vertical	176.2130	23.83	15.76	39.59	43.50	-3.91
Vertical	264.3190	24.18	18.66	42.84	46.00	-3.16
Vertical	320.6440	23.16	19.36	42.52	46.00	-3.48

Test Mode: TX 88.7MHz with SD card

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	177.4149	24.03	15.78	39.81	43.50	-3.69
Horizontal	266.1123	24.36	18.28	42.64	46.00	-3.36
Horizontal	342.0020	22.47	20.11	42.58	46.00	-3.42
Vertical	177.4149	24.11	15.78	39.89	43.50	-3.61
Vertical	266.1123	23.81	18.28	42.09	46.00	-3.91
Vertical	320.6440	23.00	19.36	42.36	46.00	-3.64

Test Mode: TX 89.1MHz with SD card

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dB) QP
Horizontal	178.2136	24.35	15.89	40.24	43.50	-3.26
Horizontal	267.3204	24.43	18.25	42.68	46.00	-3.32
Horizontal	342.0020	22.95	20.11	43.06	46.00	-2.94
Vertical	178.2136	23.87	15.84	39.71	43.50	-3.79
Vertical	267.3204	24.80	18.25	43.05	46.00	-2.95
Vertical	320.6440	23.19	19.36	42.55	46.00	-3.45

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
   Result = Reading + Corrected Factor
   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

10. OCCUPIED BANDWIDTH FOR FCC PART 15 SECTION 15.239(A)

10.1. Test Equipment

Please refer to Section 5 this report.

10.2.Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation. Playing typical audio signal (the volume control was set to maximum.)
3. Set EMI test receiver Center Frequency = fundamental frequency, RBW= 3kHz, VBW= 10kHz, Span=500kHz.
4. Set EMI test receiver Max hold. Mark peak, -26dB.
5. Let the EUT work in TX modes [Connect EUT use USB disk and SD card playing typical audio signal ('Highway Blues' from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-89.1MHz. We are select 88.1M, 88.7M, 89.1MHz TX frequency to transmit.

10.3.Band Edge FCC 15.239(a) Limit

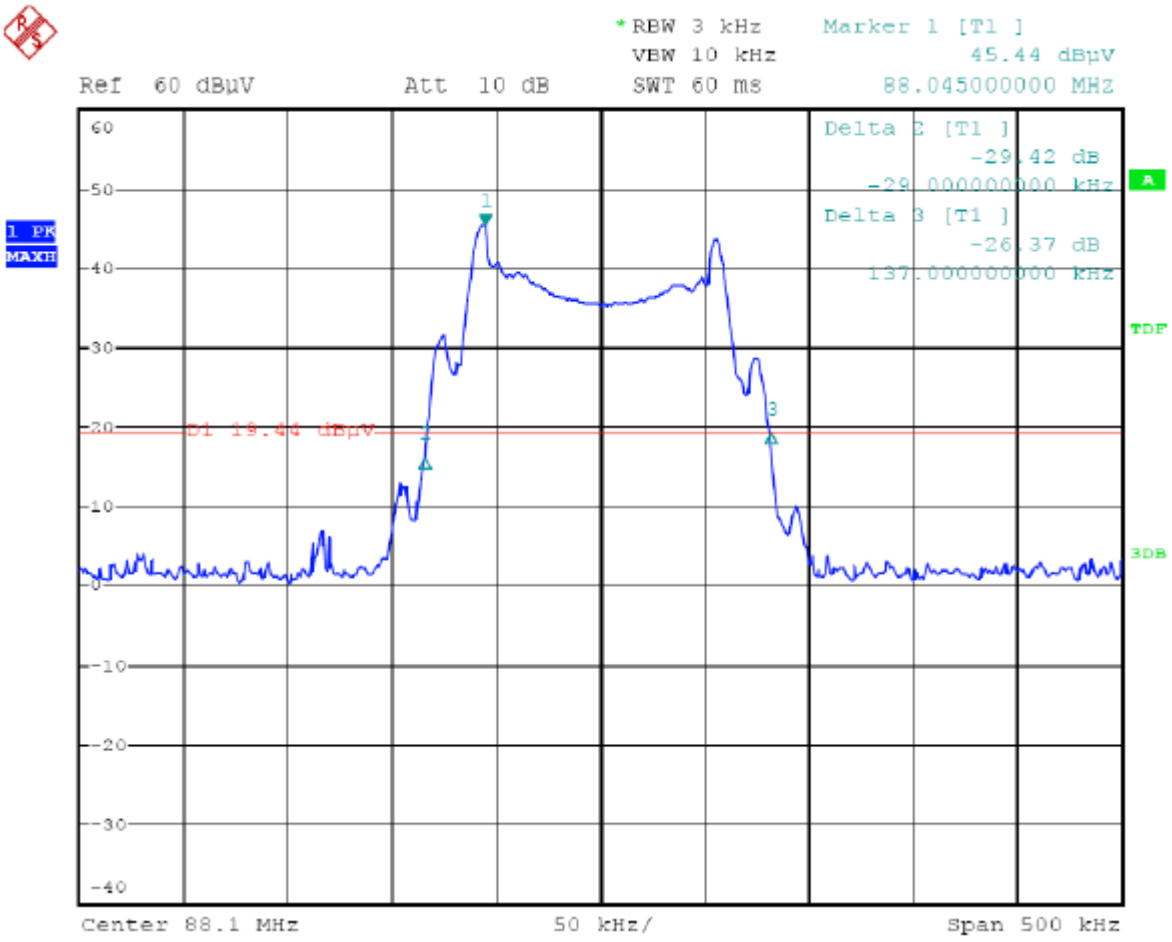
Emission from the device shall be confined within a band 200kHz wide centered on the operating frequency. The 200kHz band shall lie wholly within the frequency range of 88-108MHz.

10.4.Band Edge Test Result

Pass

FM Transmitter with USB disk	FM Transmitter with SD Card
FM 88.1MHz -26dB bandwidth = 166.0kHz	FM 88.1MHz -26dB bandwidth = 165.0kHz
FM 88.7MHz -26dB bandwidth = 166.0kHz	FM 88.7MHz -26dB bandwidth = 166.0kHz
FM 89.1MHz -26dB bandwidth = 166.0kHz	FM 89.1MHz -26dB bandwidth = 166.0kHz

FM 88.1MHz with USB disk



FM 88.1MHz with SD card