Radio Test Report

FCC ID: UJGTS102A-900A

This report concerns (check one) : ■ **Original Grant** □ **Class II Change**

Issued Date	:	Feb. 19, 2009
Project No.	:	R0902001
Equipment	:	Rear Seat Entertainment System
Model Name	:	TS102AX; TS900AX(X=A or B, Appearance colors are different)
Applicant	:	E-BRIDGE OPTOELECTORONICS., LTD.
Address	:	5F, 6, Hou sheng Rd., Lu chu Shiang, Taoyuan, 338, Taiwan, R.O.C.
Manufacturer	:	V-BRIDGE OPTIC ELECTRONICS CO., LTD
Address	:	168 Pangjin Road, Songling, Wujiang City Jiangsu P.R.C. 215200

Tested by:

Neutron Engineering Inc. EMC Laboratory

Data of Test:

Feb. 04, 2009 ~ Feb. 14, 2009

Testing Engineer : Rush Kao
(Rush Kao)

Technical Manager : Jeff Yang
(Jeff Yang)

Authorized Signatory : Andy Chiu
(Andy Chiu)

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NVLAP Lab Code: 200145-0

ilac-MRA TAF Testing Laboratory 0659

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment: Rear Seat Entertainment System
Trade Name: INViSiON
Model Name: TS102AX; TS900AX(X=A or B, Appearance colors are different)
Applicant: E-BRIDGE OPTOELECTORONICS., LTD.
Data of Test: Feb. 04, 2009 ~ Feb. 14, 2009
Test Item: ENGINEERING SAMPLE
Standards: FCC Part15, Subpart C (15.239)/ ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-R0902001) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards: (Antenna to EUT distance is **3** m)

FCC Part15, Subpart C				
Standard	Test Item	Limit	Frequency Range (MHz)	Judgment
15.207	Conducted Emission	Class B	0.15 - 30	N/A
15.209	Radiated Emission	Class B	30-1000	PASS
15.239	Radiated Emission	250 μV/m (48dBμV/m) @ 3m	88~108	PASS

NOTE:

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

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **OS01(FCC R.N.: 95335)** at the location of No.132-1, Lane 329, Sec. 2, Palian Road, Shijr City, Taipei, Taiwan.

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended 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 Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Rear Seat Entertainment System</td></tr>
<tr><td>Trade Name</td><td>INViSiON</td></tr>
<tr><td>Model Name.</td><td>TS102AX; TS900AX(X=A or B, Appearance colors are different)</td></tr>
<tr><td>OEM Brand/Model No.</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>Model difference of list below:
<table>
<tr><td>Model No.</td><td>Panel Size</td></tr>
<tr><td>TS102AX</td><td>10.2”</td></tr>
<tr><td>TS900AX</td><td>9”</td></tr>
<tr><td colspan="2">X= A or B, Appearance colors are different.</td></tr>
</table>
All the above models were tested, and the model: TS900AA was found to be the worst case during the pr-scanning test. This model of the worst case was used for final testing and collecting test data included in this report.</td></tr>
<tr><td>Product Description</td><td>The EUT is a. Rear Seat Entertainment System
<table>
<tr><td>Operation Frequency:</td><td>88.3~107.9MHz</td></tr>
<tr><td>Modulation Type:</td><td>FM</td></tr>
<tr><td>Channel Separation:</td><td>400 KHz</td></tr>
<tr><td>Antenna Designation:</td><td>Printed antenna</td></tr>
<tr><td>Output Power:</td><td>41.89 dBuV/m(Max.)</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to Note 2.</td></tr>
<tr><td>Power Source</td><td>Battery</td></tr>
<tr><td>Power Rating</td><td>DC 12V</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>Products Covered</td><td>N/A</td></tr>
<tr><td>EUT Modification(s)</td><td>N/A</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	**88.3**	09	89.9	17	106.7
03	88.7	11	90.3	19	107.1
05	89.1	13	105.9	21	107.5
07	89.5	15	106.3	**23**	**107.9**
or					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
02	88.4	10	90.0	18	106.8
04	88.8	**12**	**90.4**	20	107.2
06	89.2	14	106.0	22	107.7
08	89.6	16	106.4		

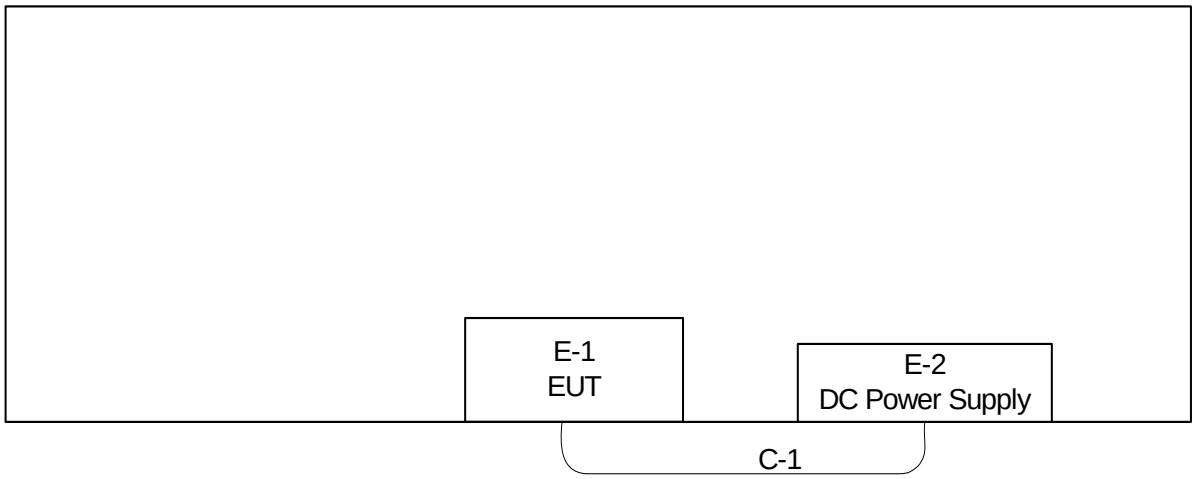
3.2 DESCRIPTION OF TEST MODES

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

Pretest Test Mode	Description
Mode 1	CH01 (88.3MHz)
Mode 2	CH12 (90.4MHz)
Mode 3	CH23 (107.9MHz)

Test Items	Mode	Channel
Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth	CTX of Z Axis	01/12/23
Radiated Emissions 9kHz~30MHz	CTX of Z Axis	01/12/23
Radiated Emissions 30MHz~10th Harmonic	CTX of Z Axis	01/12/23
Band Edge Emissions	CTX of Z Axis	01/12/23

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 Power Cable

3.4 DESCRIPTION OF SUPPORT UNITS

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.	FCC ID	Series No.	Note
E-1	Rear Seat Entertainment System	INViSiON	TS900AA	UJGTS102A-900A	N/A	EUT
E-2	DC Power Supply	Lokc	DPS-3050	N/A	400003829	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.0M	

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.

4. EMC EMISSION TEST

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 RADIATED EMISSION LIMITS (Frequency Range 9KHz-1000MHz)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/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

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Notes:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

(3) A measuring distance of 3m is a primary used. However, either 3m or 10m (instead of 10m) distance my be allowed. If the distance is 3m, add 10dB to the QP-limit above. If the distance is 10m, subtract 10dB from the QP-limit above.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3176	Jul. 24, 2009
2	Test Cable	N/A	10M_OS01	N/A	Oct. 20, 2009
3	Test Cable	N/A	3M_OS01	N/A	Oct. 08, 2009
4	Test Cable	N/A	OS01-1/-2	N/A	Oct. 08, 2009
5	Pre-Amplifier	Anritsu	MH648A(OS01)	M09961	Dec. 29, 2009
6	Positioning Controller (OS01)	MF	MF7802	N/A	N/A
7	Turn Table	Chance Most	CMTB-1.5	N/A	N/A
8	Spectrum Analyzer	R&S	FSL6	100257	Jul. 02, 2009

Remark: ” N/A” denotes No Model Name / Serial No. and No Calibration specified.

4.1.3 TEST PROCEDURE

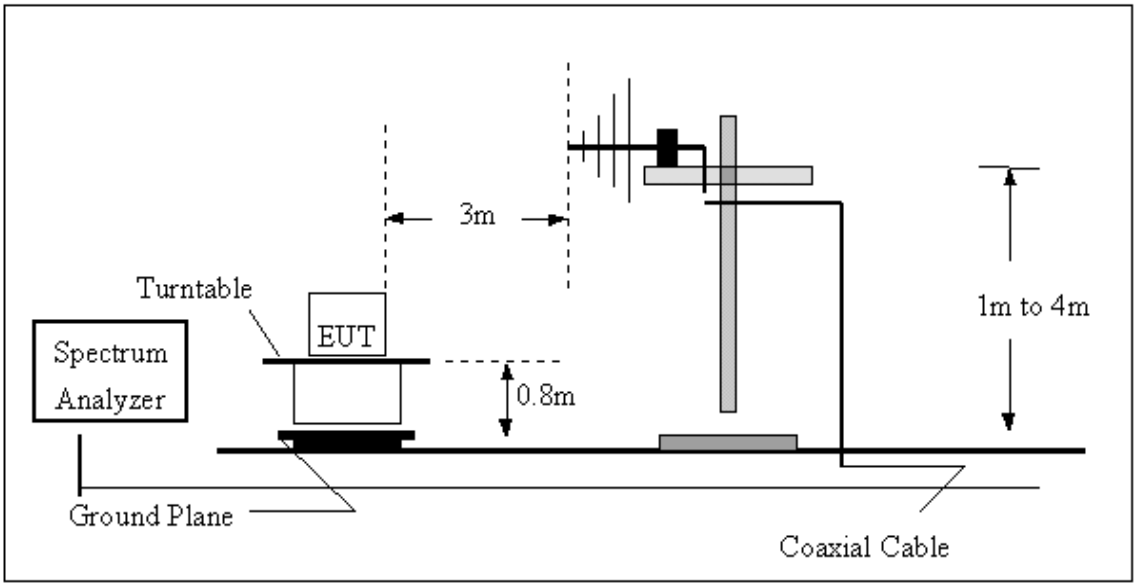
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated 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.
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.

4.1.4 DEVIATION FROM TEST STANDARD

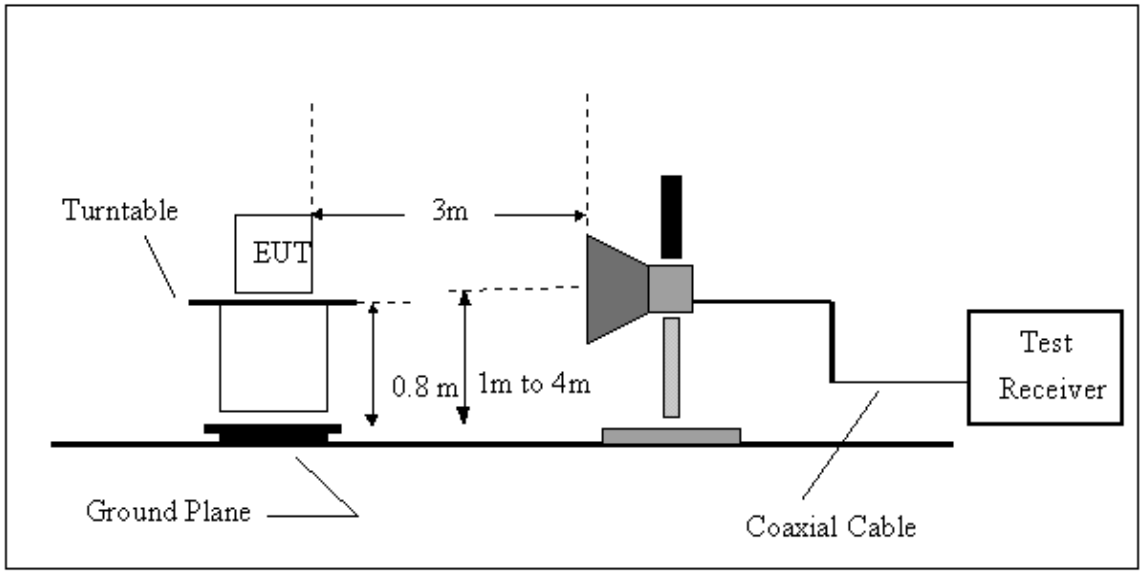
No deviation

4.1.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



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



4.1.6 EUT OPERATING CONDITIONS

(a) Only radiated testing was performed during the max. EMI emission evaluation. Conducted testing excepted because of the EUT is a battery operating device.

(b) The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.7 TEST RESULTS

EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH01 (88.3MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	V	51.89	-15.22	36.67	40.00	- 3.33	
161.92	V	43.79	-13.60	30.19	43.50	- 13.31	
174.66	V	44.00	-14.02	29.98	43.50	- 13.52	
353.20	V	41.31	-9.40	31.91	46.00	- 14.09	
377.26	V	46.88	-8.65	38.23	46.00	- 7.77	

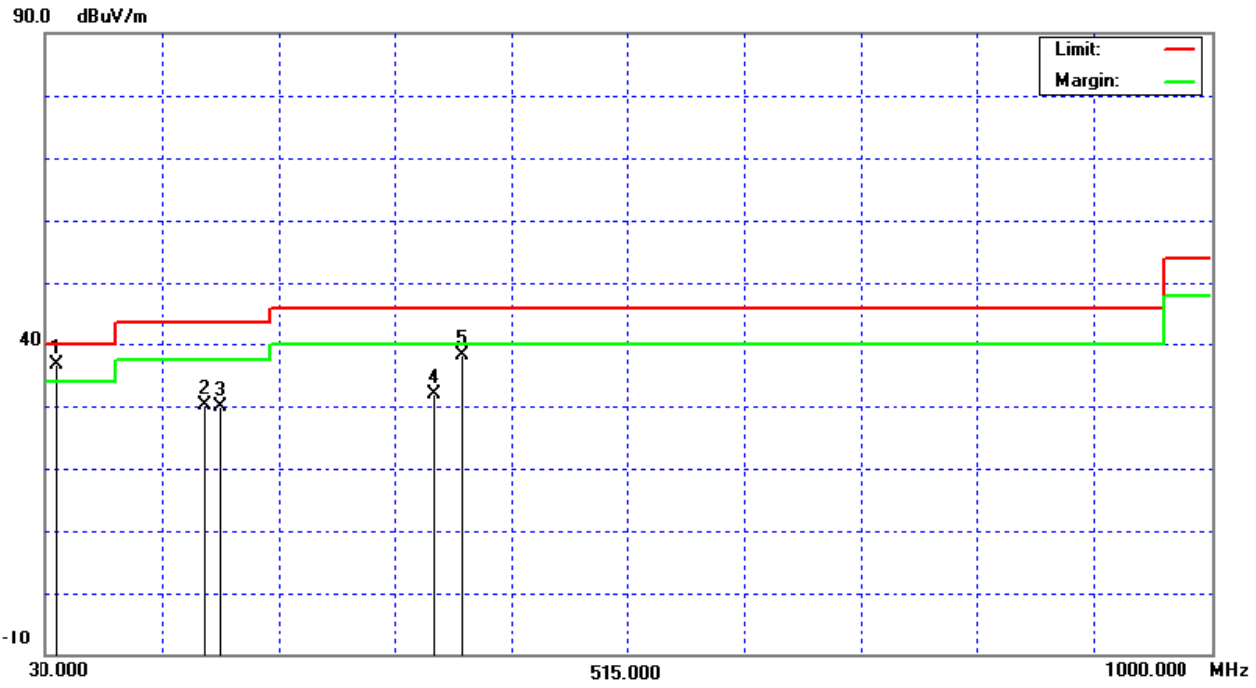
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH01 (88.3MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	H	45.63	-15.22	30.41	40.00	- 9.59	
53.28	H	45.63	-15.10	30.53	40.00	- 9.47	
175.50	H	47.87	-14.11	33.76	43.50	- 9.74	
176.60	H	35.34	-14.22	21.12	43.50	- 22.38	
353.20	H	37.28	-9.40	27.88	46.00	- 18.12	
377.26	H	44.39	-8.65	35.74	46.00	- 10.26	

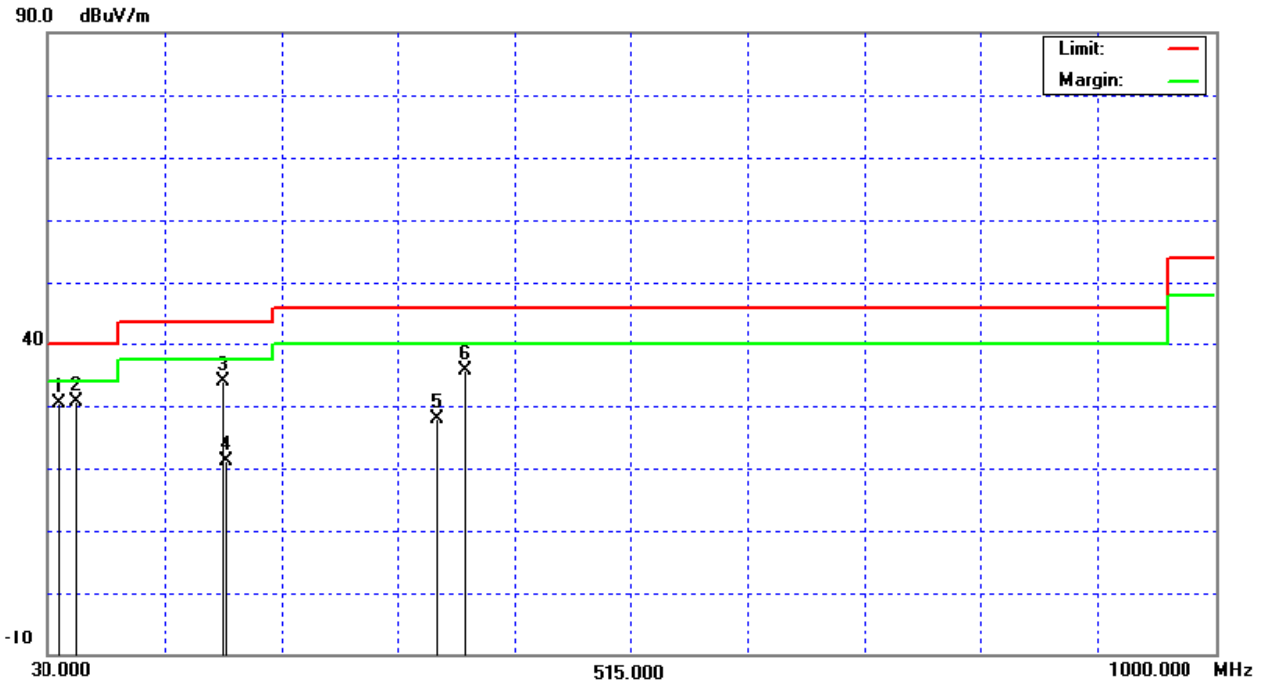
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH12 (90.4MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	V	50.66	-15.22	35.44	40.00	- 4.56	
179.38	V	47.98	-14.50	33.48	43.50	- 10.02	
180.80	V	35.98	-14.64	21.34	43.50	- 22.16	
270.56	V	45.65	-12.91	32.74	46.00	- 13.26	
361.60	V	32.25	-9.14	23.11	46.00	- 22.89	
377.26	V	48.71	-8.65	40.06	46.00	- 5.94	

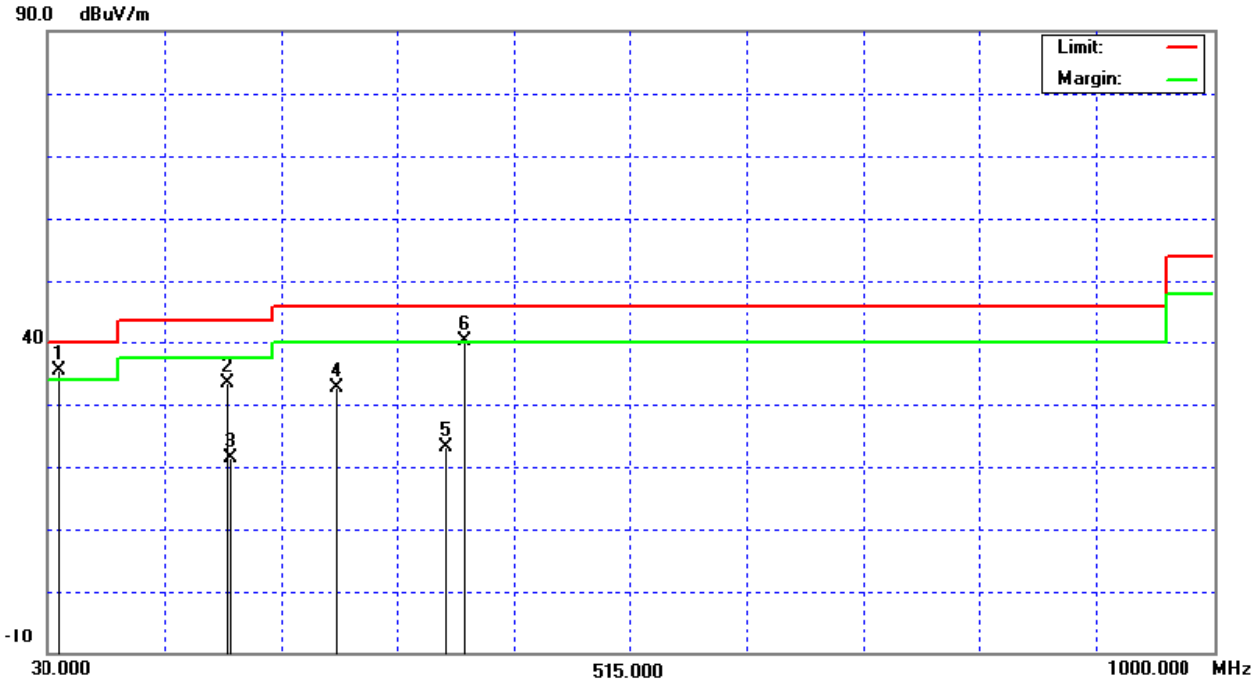
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH12 (90.4MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	H	45.21	-15.22	29.99	40.00	- 10.01	
179.38	H	46.90	-14.50	32.40	43.50	- 11.10	
180.80	H	38.15	-14.64	23.51	43.50	- 19.99	
271.20	H	43.52	-12.87	30.65	46.00	- 15.35	
361.60	H	32.74	-9.14	23.60	46.00	- 22.40	
377.26	H	44.57	-8.65	35.92	46.00	- 10.08	

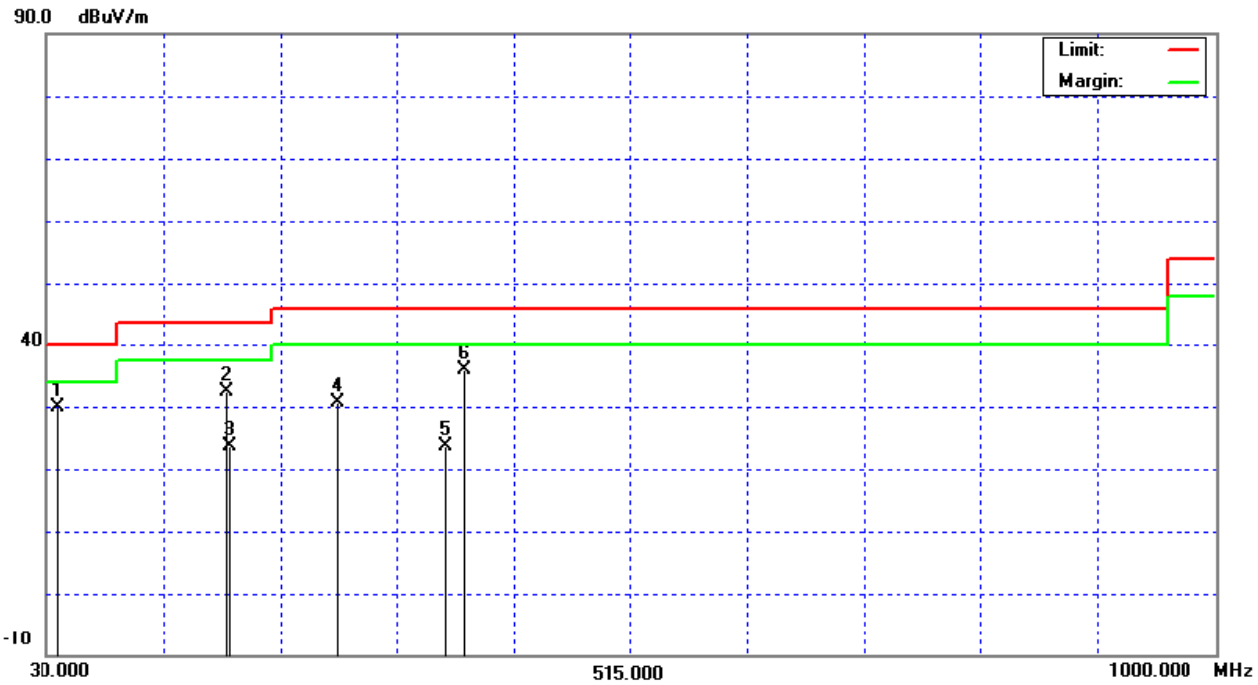
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH23 (107.9MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	V	48.71	-15.22	33.49	40.00	- 6.51	
161.92	V	42.52	-13.60	28.92	43.50	- 14.58	
215.80	V	48.56	-14.64	33.92	43.50	- 9.58	
323.70	V	48.07	-10.71	37.36	46.00	- 8.64	
377.26	V	47.16	-8.65	38.51	46.00	- 7.49	
431.60	V	38.97	-7.15	31.82	46.00	- 14.18	

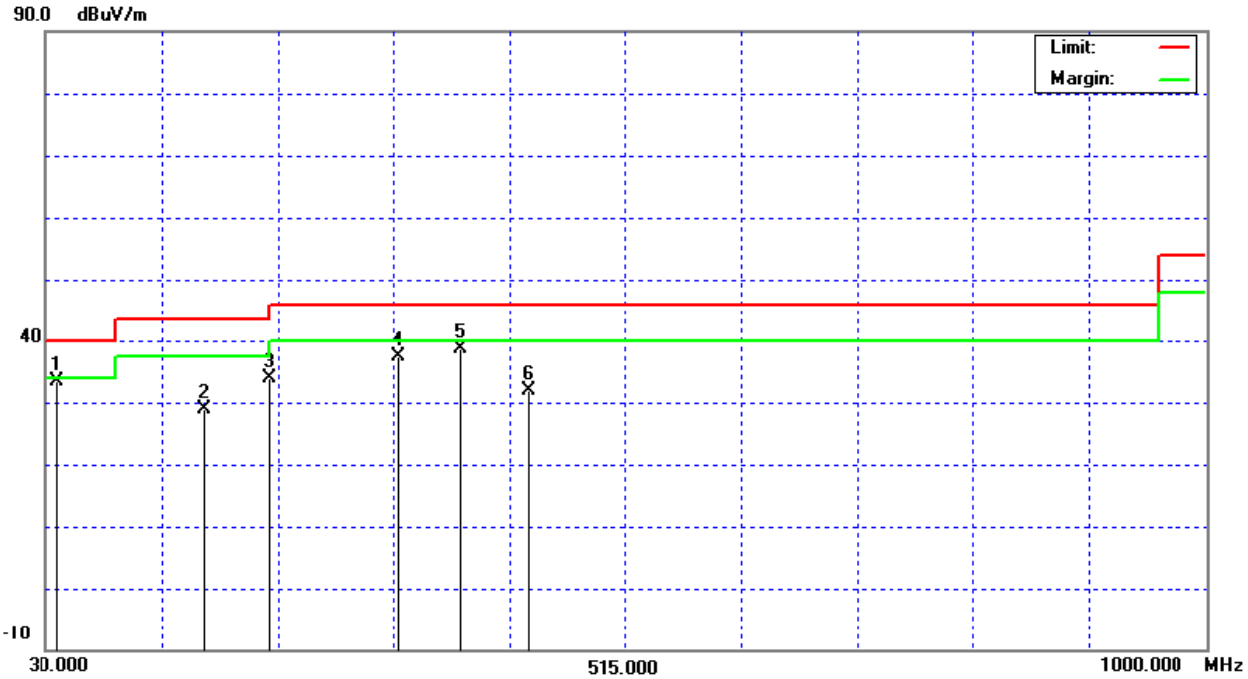
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH23 (107.9MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
39.70	H	45.33	-15.22	30.11	40.00	- 9.89	
161.92	H	40.76	-13.60	27.16	43.50	- 16.34	
216.24	H	51.22	-14.64	36.58	46.00	- 9.42	
322.94	H	44.75	-10.74	34.01	46.00	- 11.99	
336.52	H	43.16	-10.12	33.04	46.00	- 12.96	
431.60	H	40.38	-7.15	33.23	46.00	- 12.77	

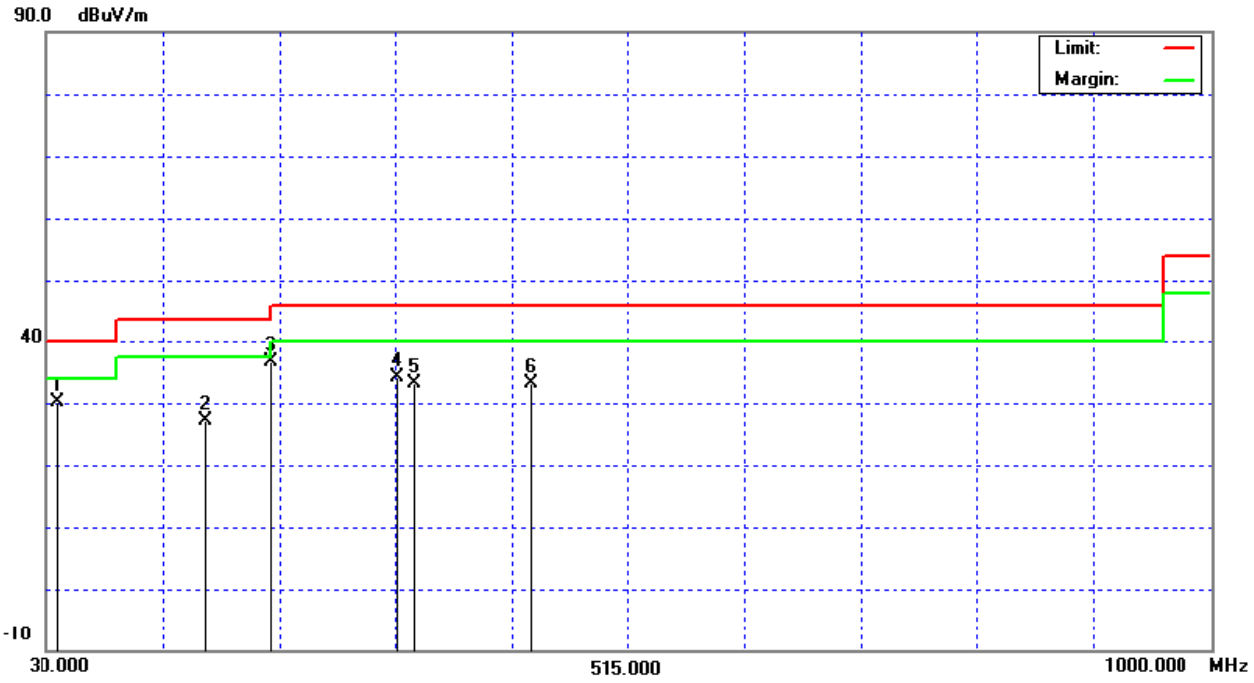
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table。



4.2 FIELD STRENGTH OF FUNDAMENTAL AND BAND EDGE EMISSIONS MEASUREMENT

4.2.1 LIMITS OF FIELD STRENGTH OF FUNDAMENTAL AND BAND EDGE EMISSIONS MEASUREMENT

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)

4.2.2 MEASURING INSTRUMENTS AND SETTING

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

4.2.3 TEST PROCEDURE

The test procedure is the same as section 4.1.3.

4.2.4 TEST SETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.5

4.2.5 TEST DEVIATION

There is no deviation with the original standard.

4.2.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

4.2.7 TEST RESULTS

EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH01 (88.3MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
88.0000	V	27.43	-19.59	7.84	40.00	- 32.16	(Peak)
88.0000	V	26.35	-19.59	6.76	40.00	- 33.24	(AVG)
88.2920	V	61.39	-19.55	41.84	67.96	- 26.12	(Peak)
88.2920	V	61.36	-19.55	41.81	47.96	- 6.15	(AVG)

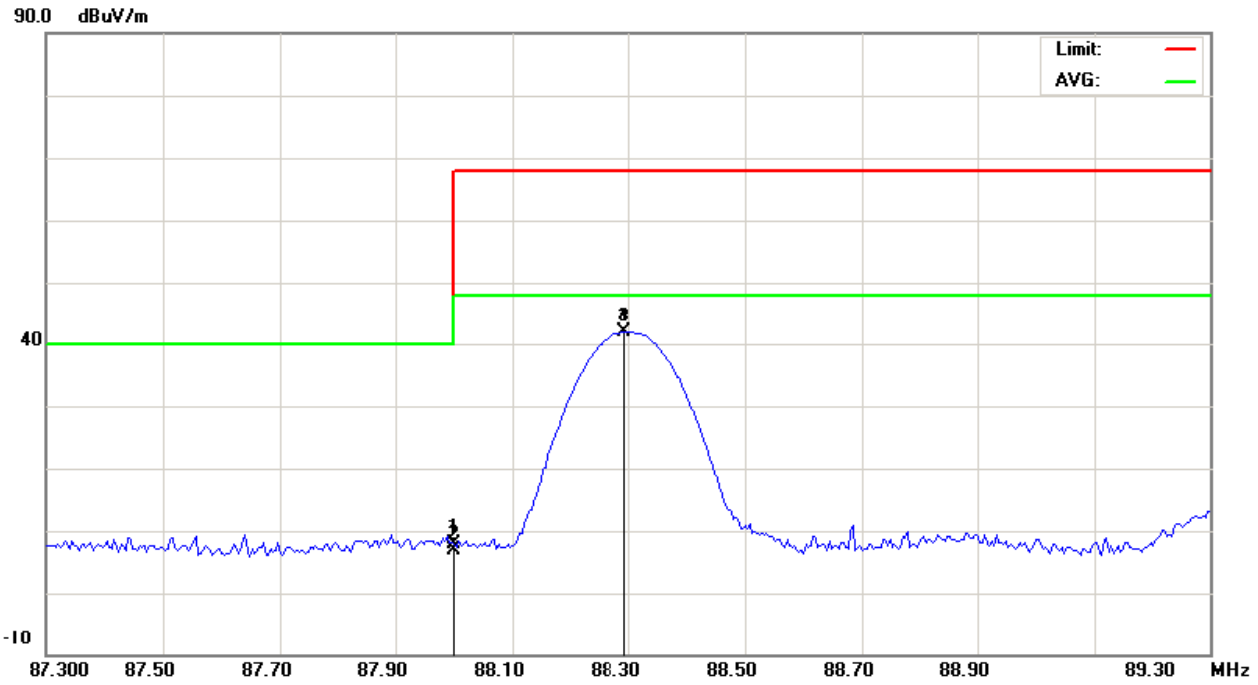
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH01 (88.3MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
88.0000	H	26.98	-19.59	7.39	40.00	- 32.61	(Peak)
88.0000	H	24.16	-19.59	4.57	40.00	- 35.43	(AVG)
88.3000	H	55.22	-19.55	35.67	67.96	- 32.29	(Peak)
88.3000	H	55.20	-19.55	35.65	47.96	- 12.31	(AVG)

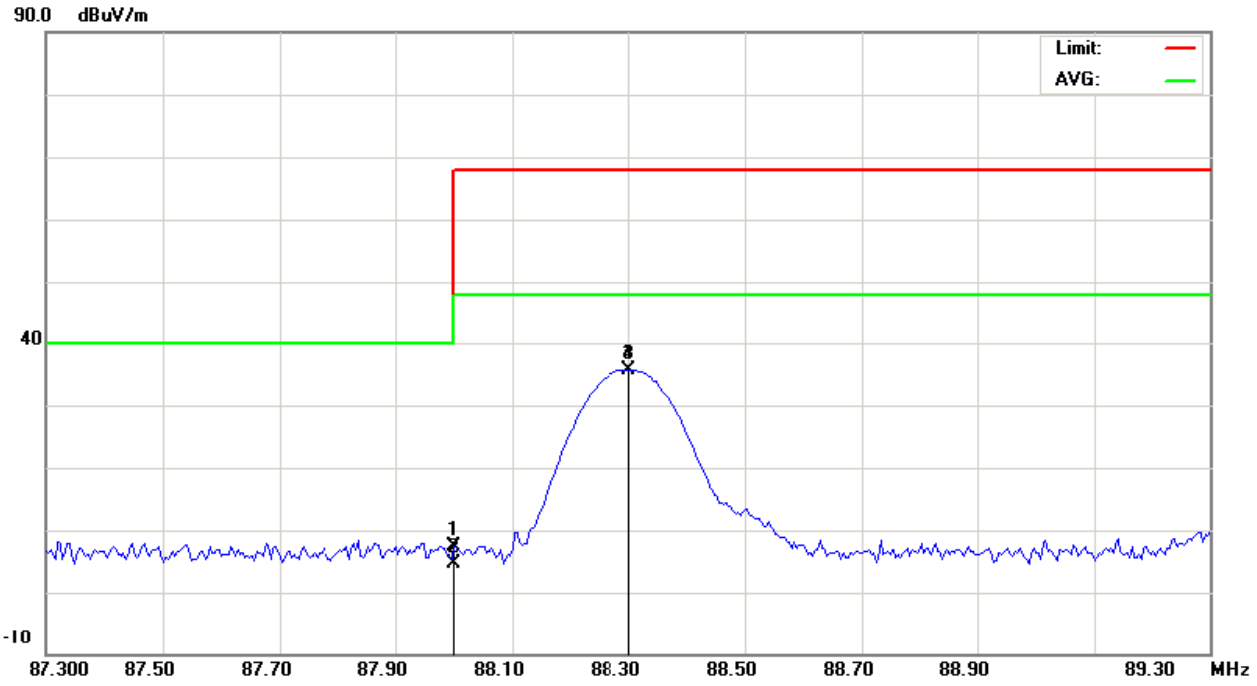
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH12 (90.4MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
90.4080	V	58.71	-19.29	39.42	67.96	- 28.54	(Peak)
90.4080	V	58.58	-19.29	39.29	47.96	- 8.67	(AVG)

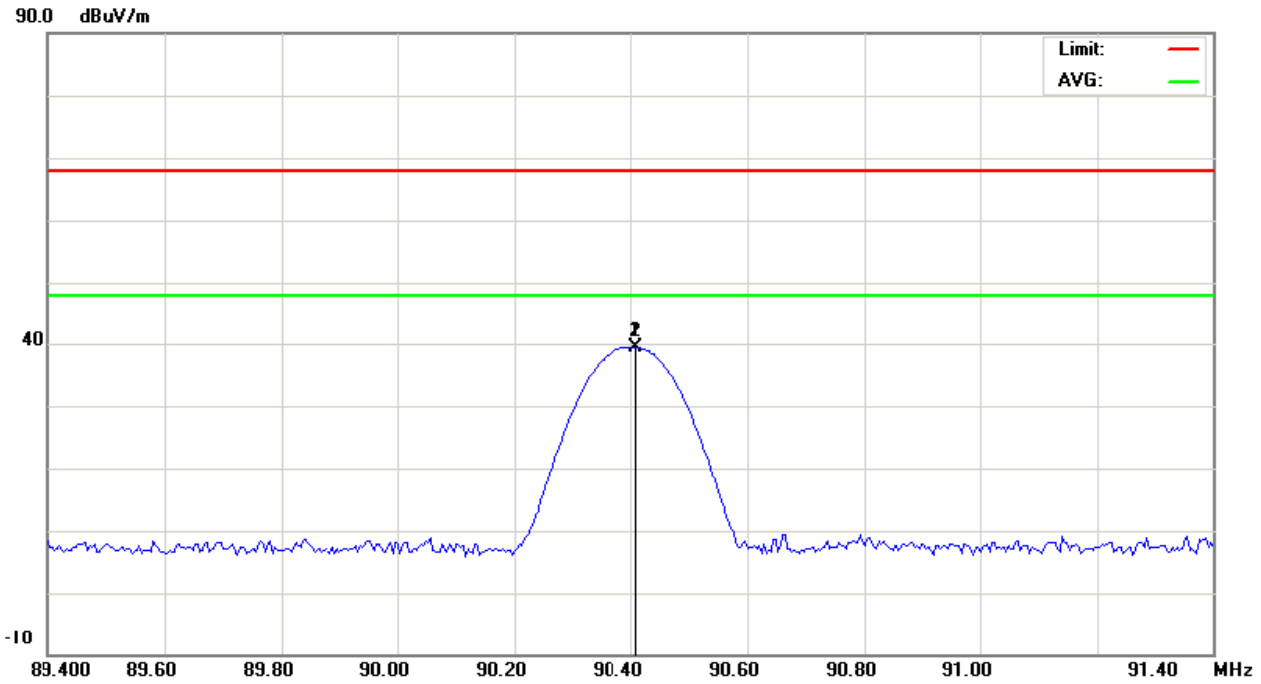
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH12 (90.4MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
90.4080	H	54.79	-19.29	35.50	67.96	- 32.46	(Peak)
90.4080	H	54.66	-19.29	35.37	47.96	- 12.59	(AVG)

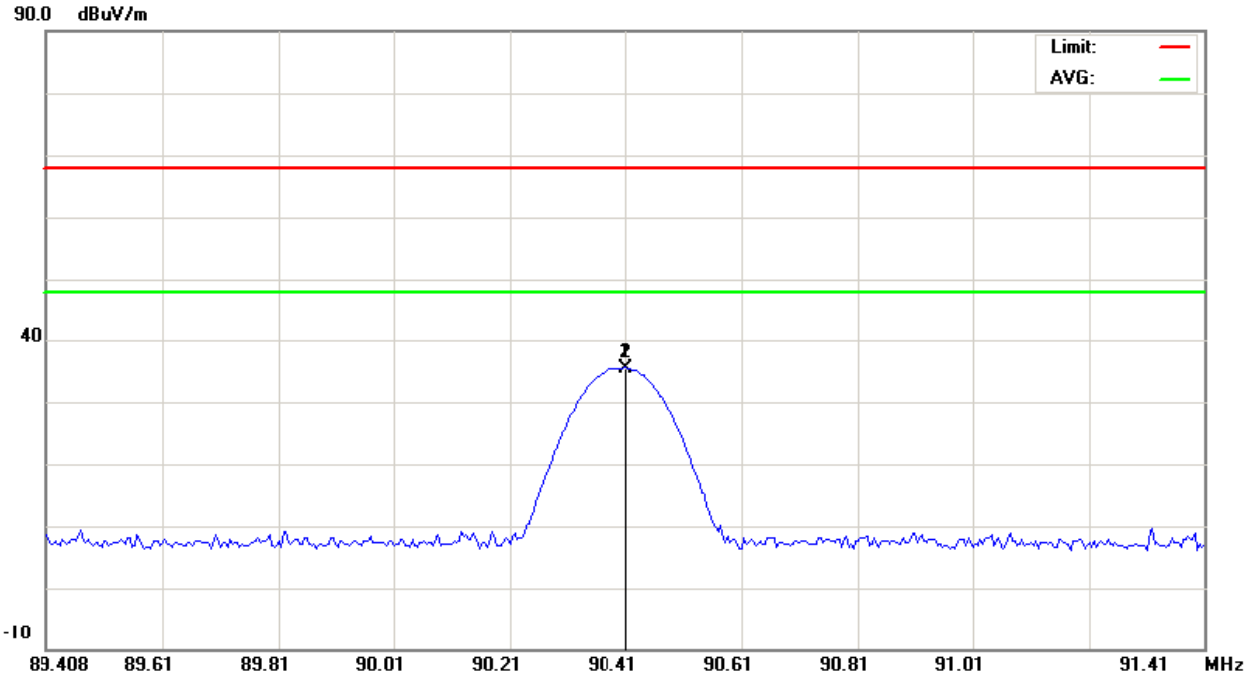
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH23 (107.9MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
107.8960	V	63.87	-17.68	46.19	67.96	- 21.77	(Peak)
107.8960	V	63.77	-17.68	46.09	47.96	- 1.87	(AVG)
108.0000	V	54.02	-17.67	36.35	43.50	- 7.15	(Peak)
108.0000	V	53.02	-17.67	35.35	43.50	- 8.15	(AVG)

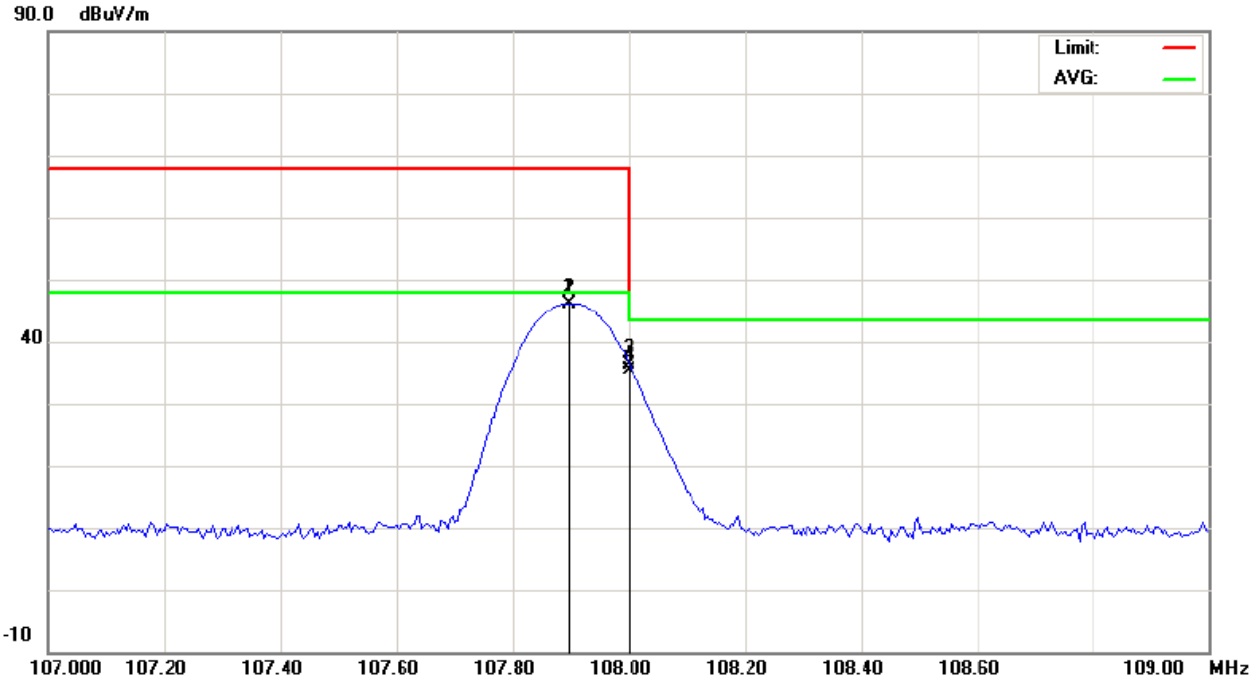
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	19°C	Relative Humidity：	72%
Test Voltage ：	DC 12V		
Test Mode：	CH23 (107.9MHz)		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
107.9160	H	59.57	-17.68	41.89	67.96	- 26.07	(Peak)
107.9160	H	59.35	-17.68	41.67	47.96	- 6.29	(AVG)
108.0000	H	51.44	-17.67	33.77	43.50	- 9.73	(Peak)
108.0000	H	49.92	-17.67	32.25	43.50	- 11.25	(AVG)

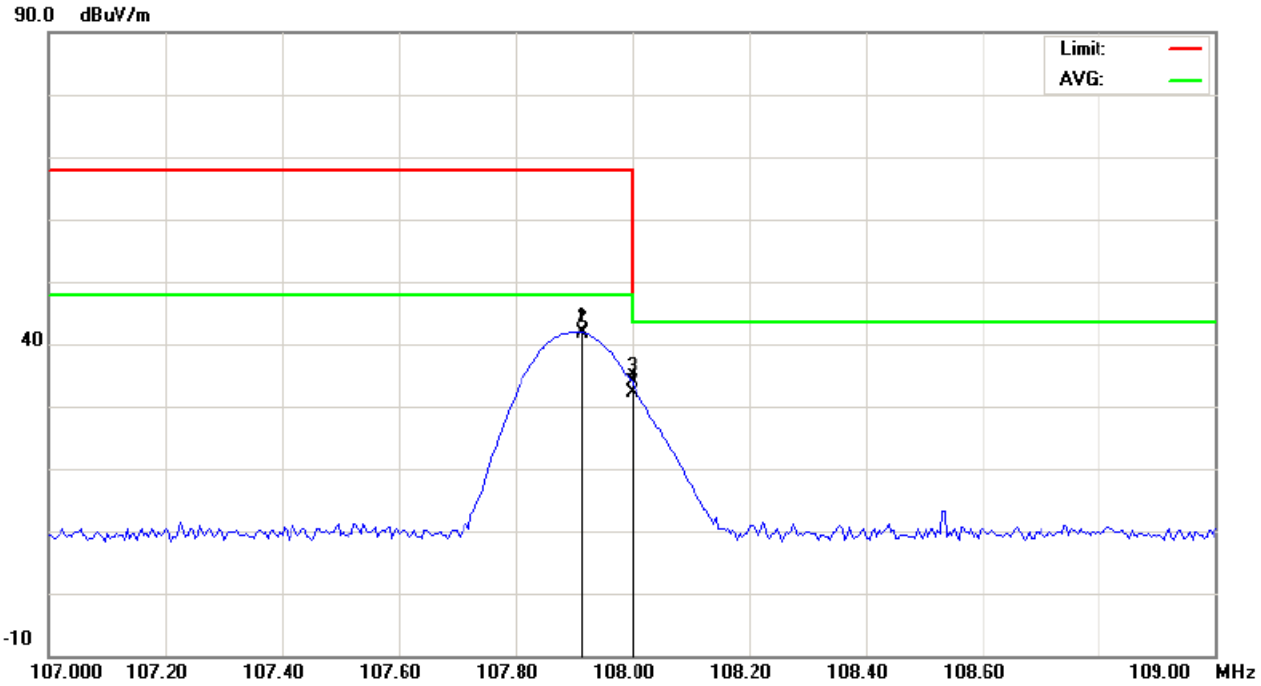
Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand



5. BANDWIDTH REQUIREMENT

5.1 LIMITS OF EMISSION BAND MEASUREMENT

Emissions from the intentional radiator shall be confined within a bands 200kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88 to 108MHz.

5.1.1 MEASUREMENT INSTRUMENTS LIST

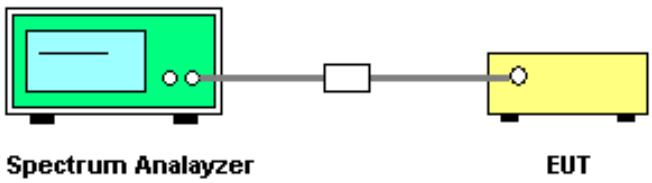
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Sep. 09, 2009

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
b. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
c. Measured the spectrum width with power higher than 20dB below carrier.

5.1.3 TEST SETUP LAYOUT



5.1.4 TEST DEVIATION

There is no deviation with the original standard.

5.1.5 EUT OPERATION DURING TEST

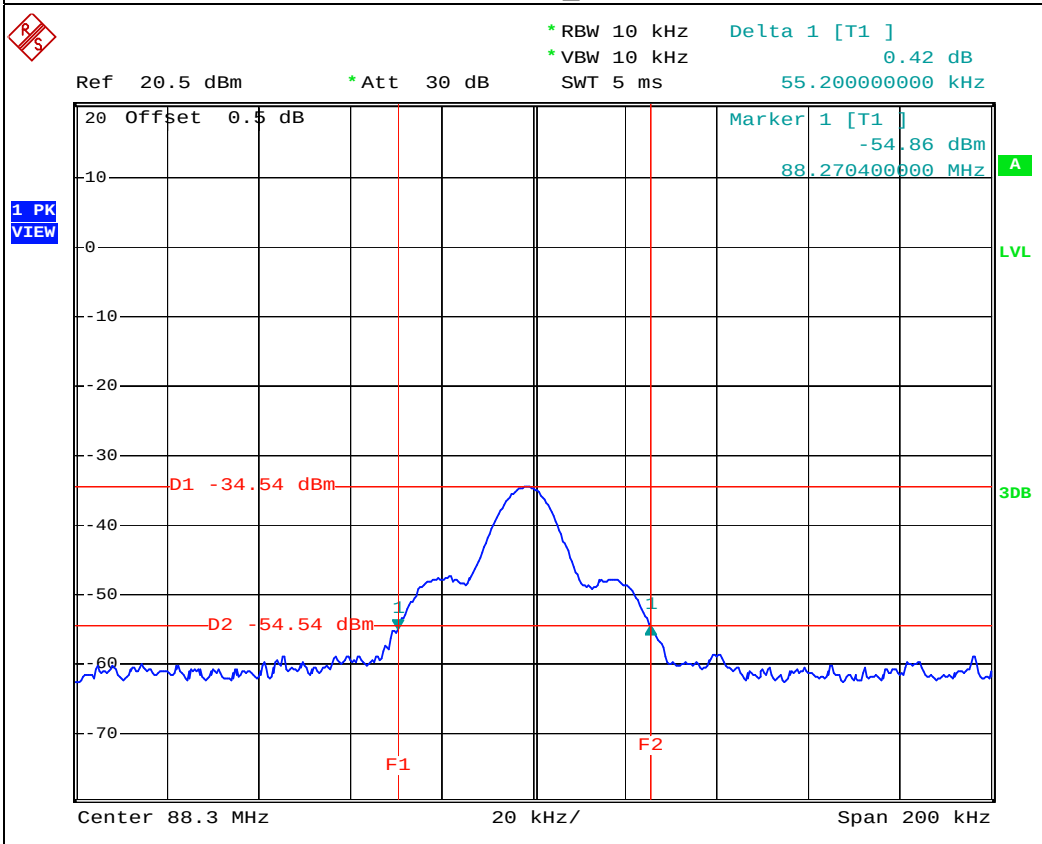
The EUT was programmed to be in continuously transmitting mode.

5.1.6 TEST RESULT OF 20dB SPECTRUM BANDWIDTH

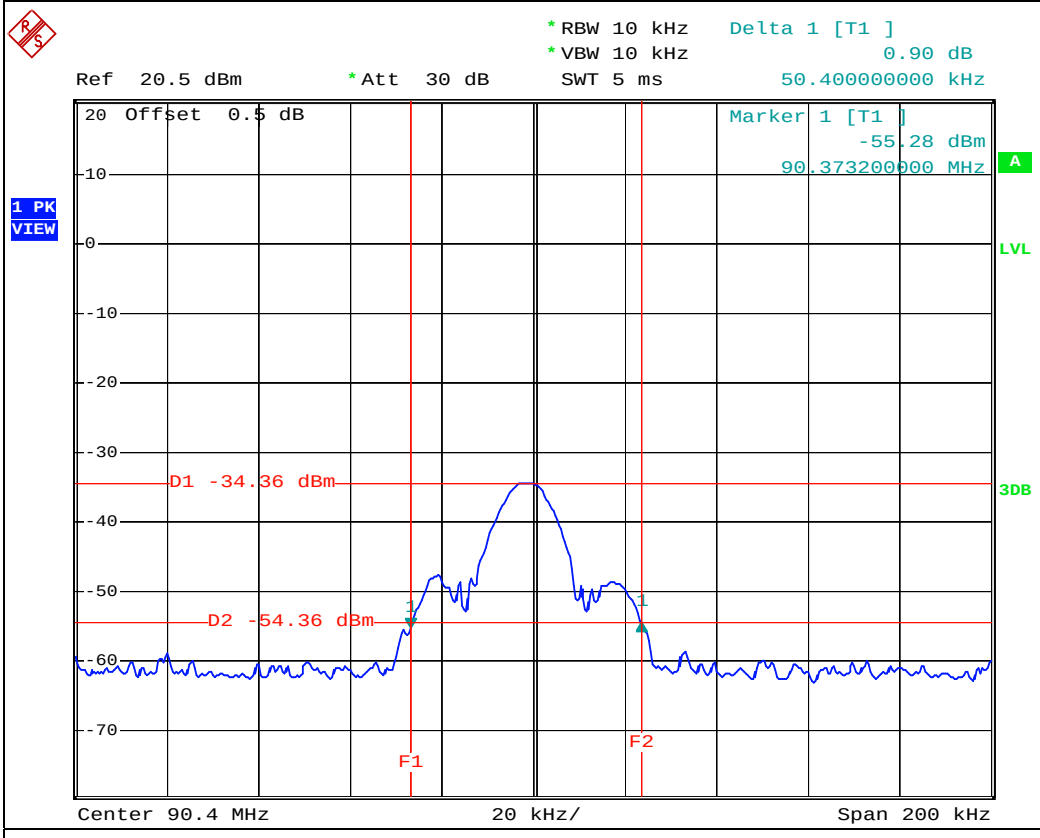
EUT：	Rear Seat Entertainment System	Model Name ：	TS900AA
Temperature：	26°C	Relative Humidity：	60%
Test Voltage ：	DC 12V		
Test Mode：	TRANSMITTER (Mono mode)		
Note：	CH01 (88.3MHz) / CH12 (90.4MHz) / CH23 (107.9MHz)		

Channel	Frequency (MHz)	20dB Bandwidth (kHz)	Limits kHz (20dB Down)	Test Result
01	88.3	55.20	200.0000	PASS
12	90.4	50.40	200.0000	PASS
23	107.9	55.20	200.0000	PASS

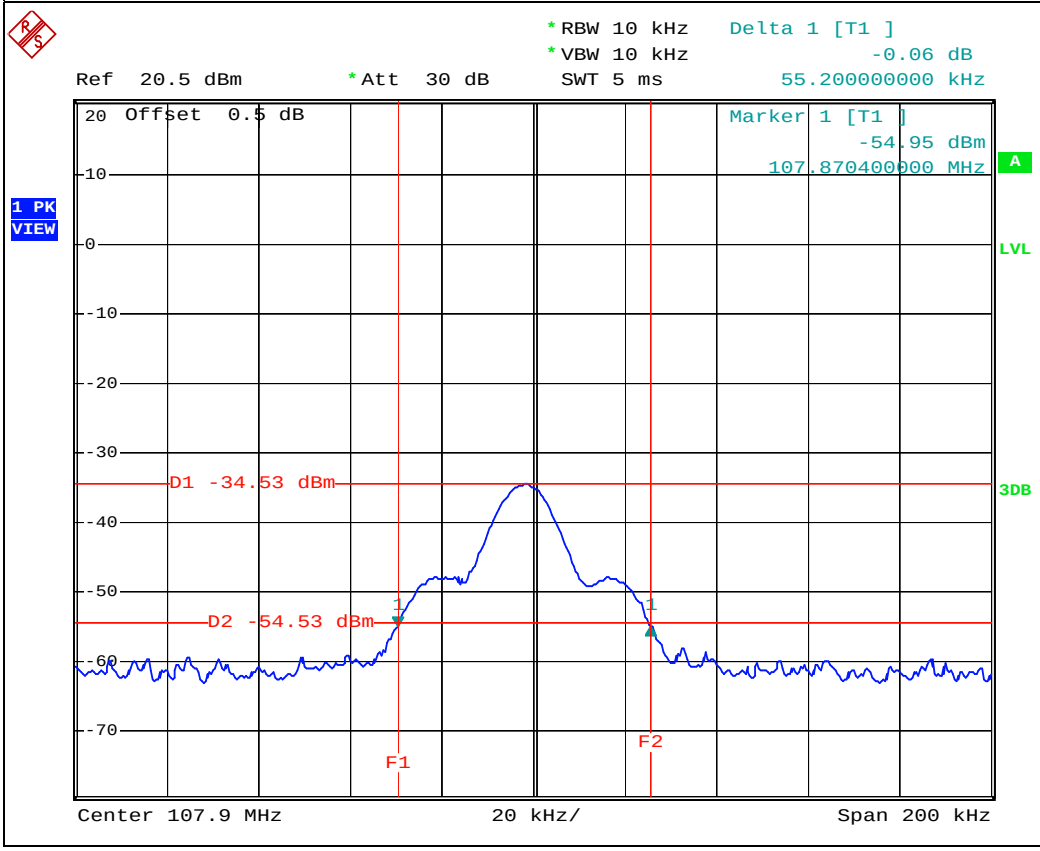
CH01_88.3MHz



CH12_90.4MHz



CH23_107.9MHz



6. EUT TEST PHOTO

Radiated Measurement Photos

Radiated Measurement Photos