683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080
Tel: +82-31-321-2664 Fax: +82-31-321-1664
http://www.digitalemc.com

CERTIFICATE OF COMPLIANCE
FCC Part 15B Certification

Dates of Tests : November 24 ~ 26, 2007
Test Report No. : DR50110711J
Test Site : DIGITAL EMC CO., LTD.

FCC ID. **O6ZR16**

APPLICANT **Humax Co., Ltd.**

FCC Classification	:	**Part 15 TV interface device**
Device name	:	**DIRECTV Plus DVR**
Manufacturer 1	:	**Humax Co., Ltd.**
Manufacturer 2	:	**DongGuan LiaoBu Anam Electronics Co., Ltd.**
Model name	:	**R16-500**
Brand name		**DIRECTV**
Test Device Serial number	:	**Identical prototype**
FCC Rule Part(s)	:	**FCC Part 15 Subpart B**
Date of issue	:	**November 26, 2007**

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

NVLAP LAB CODE 200559-0

TABLE OF CONTENTS

1. General Information

This report contains the result of tests performed by:

DIGITAL EMC CO., LTD.
Address : 683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080
http://www.digitalemc.com E-mail : shins@digitalemc.com
Tel: +82-31-321-2664 Fax: +82-31-321-1664

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".
This laboratory is accredited by NVLAP for NVLAP Lab. Code : 200559-0.

Test operator: Engineer

November 26, 2007	Seung-Bum Cho	
Data	Name	Signature

Report Reviewed By: Manager

November 26, 2007	Young-Kyu Shin	
Data	Name	Signature

Ordering party:

Company name	:	Humax Co., Ltd.
Address	:	Humax Building 212-1, Yubang-Dong, Yongin-City
City/town	:	Gyunggi-Do
Country	:	Korea.
Zip code	:	449-080
Date of order	:	November 09, 2007

2. Information about test item

R16-500

2.1 Equipment information

Kind of Equipment	DIRECTV Plus DVR
Model No.(Brand Name)	R16-500 (DIRECTV)
Add Model No.	R16
Model difference	Only model name
Serial No.	None
Type of Sample Tested	Pre-Production
Rating Power Supply	100 – 240V, 50/60Hz, 55Watts
Frequencies	4MHz, 27MHz, 24MHz, 28.224MHz, 13.225625MHz, 166MHz
Internal Board and Layers	SMPS B/D : 1 layer, MAIN B/D : 4 layers, FRONT B/D : 2 layers
Signal Ports	SAT(1,2), RF IN/OUT, USB, Digital Audio Out, S-Video Out, Video out(1,2), Audio out(1,2), Phone jack
RF Output Channel	CH3, CH4
Impedance of RF In/Out Port	75ohm
Tested Power Supply	1 Phase 120Vac, 60Hz

2.2 Ancillary Equipment

Equipment	Model No.	FCC ID	Serial No.	Manufacturer
Video monitor	SAM-14MV	DOC	F509M0962	KTV GROBAL
USB Memory Stick(4GB)	Mandriva	DOC	N/A	AXXEN

2.3 Used Cables

Port Name	Shield	Length(m)	Back shell	Connected to
Satellite In 1	Y	10	Metal	Satellite ANT
Satellite In 2	Y	10	Metal	Satellite ANT
Off-AIR In	Y	1.5	Metal	Termination
Out To TV	Y	1.5	Metal	Termination
USB	-	-	Metal	USB Memory Stick
S-Video Out	Y	1.5	Metal	Video monitor
Audio/Video Out 1	Y	1.5	Metal	Video monitor
Audio/Video Out 2	Y	1.5	Metal	Termination
Phone jack	N	10	Plastic	Tel Line

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Status (Note 1)
15.109	Radiated Emission Measurement	C
15.107	Conducted Emissions Measurement	C
15.115(b)	Output Signal Level Measurement	C
15.115(b)	Output Terminal Conducted Spurious Emissions Measurement	C
15.115(c)	Transfer Switch Isolation Measurement	C
Note 1: C= Complies NC=Not Complies NT=Not Tested NA=Not Applicable Note 2: The EUT was tested according to FCC Part 15B and ANSI C63.4-2003.		

3.2 Operation Modes for test

The measurement were made at each I/O ports of EUT being connected with appropriate cables, signal generator and peripherals for termination. This EUT has RCA type video/audio output terminals, two satellite antenna inputs, a TV antenna input, a RF output terminal, a Optical audio output and a S-video output terminal. All ports were exercised appropriately for the tests.

Note : USB port is for future use.

3.2 Measurement requirements

3.2.1 Radiated Emission Measurement

Procedure:

In the frequency range of 30MHz to 1GHz, the electric field strength was measured on a 10m Semi Anechoic Chamber with a reference ground plane and at a distance of 3m. And above 1GHz frequency range, the electric field strength was measured with double-ridged horn antenna at a distance of 3m. The height of the measuring antenna was varied between 1 to 4 m and the table (height: 0.8m) was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization and the maximum value is presented in the report. For further description of the configuration refer to the picture of the test set-up. Final point measurements were performed with a quasi-peak detector.

The spectrum analyzer is set to:

RBW = 120 kHz (30MHz ~ 1 GHz)
= 1 MHz (> 1 GHz)

VBW ≥ RBW

Trace = max hold

Detector function = Quasi-peak (30MHz~1GHz)
Peak / Average (> 1GHz)

Sweep = auto

Measurement Result: Complies

- Refer to the Next page

Minimum Standard: LIMIT

Frequency (MHz)	Limit (dBuV/m) @ 3m
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
> 960	54.0

Radiated emission Test Data

1) Test Data: November 26, 2007 Humidity: 45 %
Temperature: 18 ℃ Barometric: 1000 mbar

2) Result

[CH 3 PLAYBACK MODE]

Frequency [MHz]	Pol.	Reading [dBμV]	C.F. [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
230.529	**H**	**51.6**	**-9.6**	**42.0**	**46.0**	**4.0**
230.529	V	42.9	-9.6	33.3	46.0	12.7
801.027	V	41.7	-0.8	40.9	46.0	5.1

[CH 3 RECEIVEING & RECORDING MODE]

Frequency [MHz]	Pol.	Reading [dBμV]	C.F. [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
186.602	V	35.2	-11.2	24.0	43.5	19.5
213.430	**H**	**48.1**	**-10.4**	**37.7**	**43.5**	**5.8**
230.529	H	34.8	-9.6	25.2	46.0	20.8
320.689	V	34.4	-10.7	26.8	46.0	19.2
801.027	V	38.7	-0.8	37.9	46.0	8.1

[CH 4 PLAYBACK MODE]

Frequency [MHz]	Pol.	Reading [dBμV]	C.F. [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
231.008	**H**	**52.4**	**-11.5**	**42.9**	**46.0**	**3.1**
800.181	V	38.8	-0.8	38.0	46.0	8.0

[CH 4 RECEIVING & RECORDING MODE]

Frequency [MHz]	Pol.	Reading [dBμV]	C.F. [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
186.602	V	34.9	-11.2	23.7	43.5	19.8
231.000	**H**	**51.9**	**-11.5**	**42.4**	**46.0**	**3.6**
800.181	V	37.6	-0.8	36.8	46.0	9.2

Table 1: Radiated emission Test Data

NOTES:
1. All modes of operation were investigated and the worst-case emissions are reported.
2. H = Horizontal, V = Vertical
3. C.F.: Correction Factors (Cable loss + Antenna factor - Amp gain)
4. Sample calculation ;
   At Frequency: 231.008 MHz
   Result = Reading + C.F. = 52.4 + (-11.5) = 42.9 [dBμV/m]
5. Margin = Limit – Result
6. Measurement Data is keep in DIGITAL EMC

3.2.2 Conducted Emission Measurement

Procedure:

The conducted emissions were measured in the shielded room with a spectrum analyzer in peak hold. EUT was placed on 80cm height wooden table. Emissions closest to the limit are measured in the quasi-peak and average detector mode with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and changing operation. The highest emissions relative to the limit are listed.

Measurement Result: Complies

- Refer to the Next page

Minimum Standard: FCC Part 15.107

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

Measurement Setup

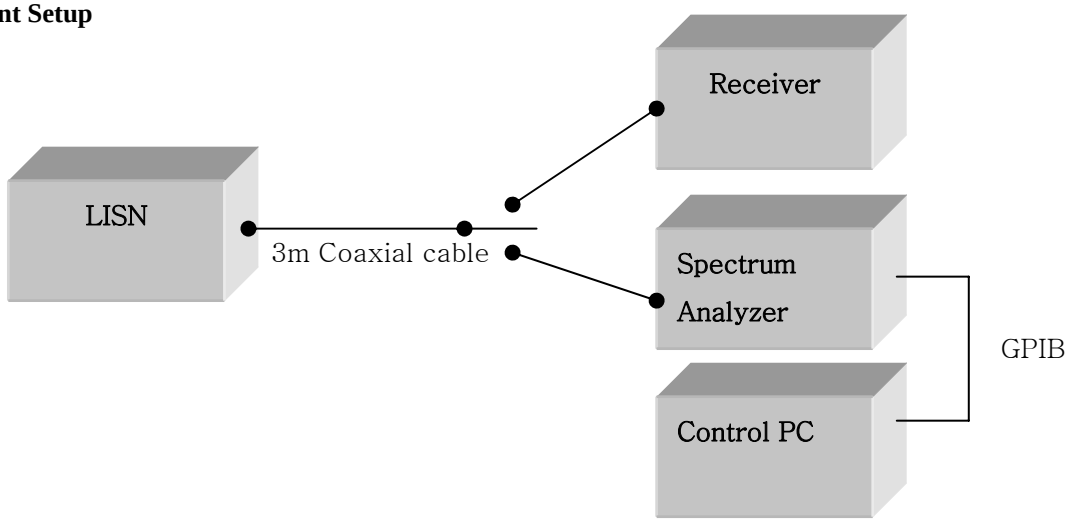
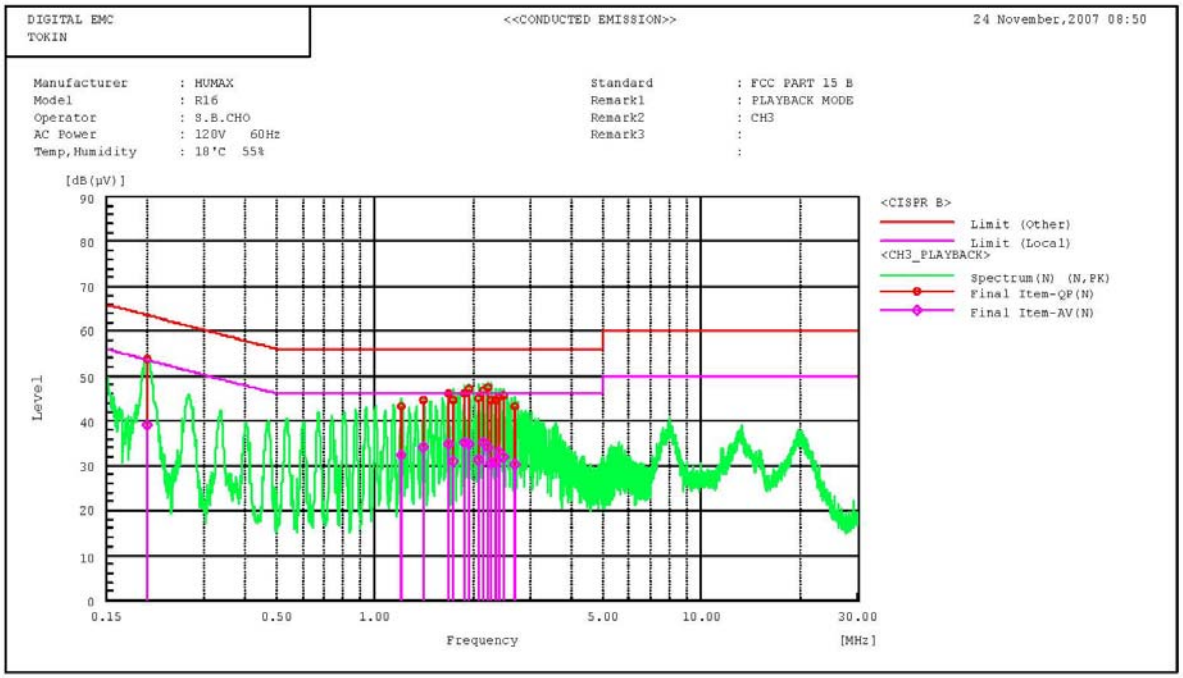
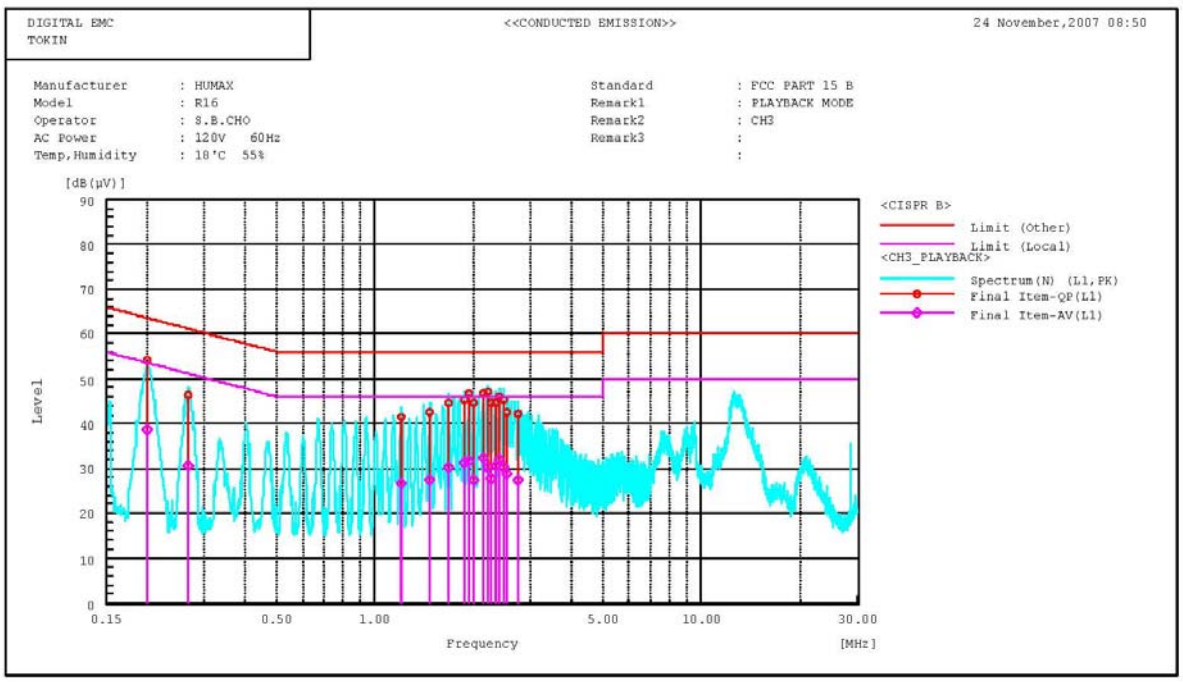


Figure 2: Measurement setup for AC Conducted Emission

Conducted Emission(Playback mode)

[CH 3]





********** DIGITAL EMC **********

<<CONDUCTED EMISSION>>

24 November,2007 08:50

Standard : FCC PART 15 B
Manufacturer : HUMAX
Model : R16
Operator : S.B.CHO
AC Power : 120V 60Hz
Temp,Humidity : 18°C 55%
Remark1 : PLAYBACK MODE
Remark2 : CH3
Remark3 :
:

****

Final Result

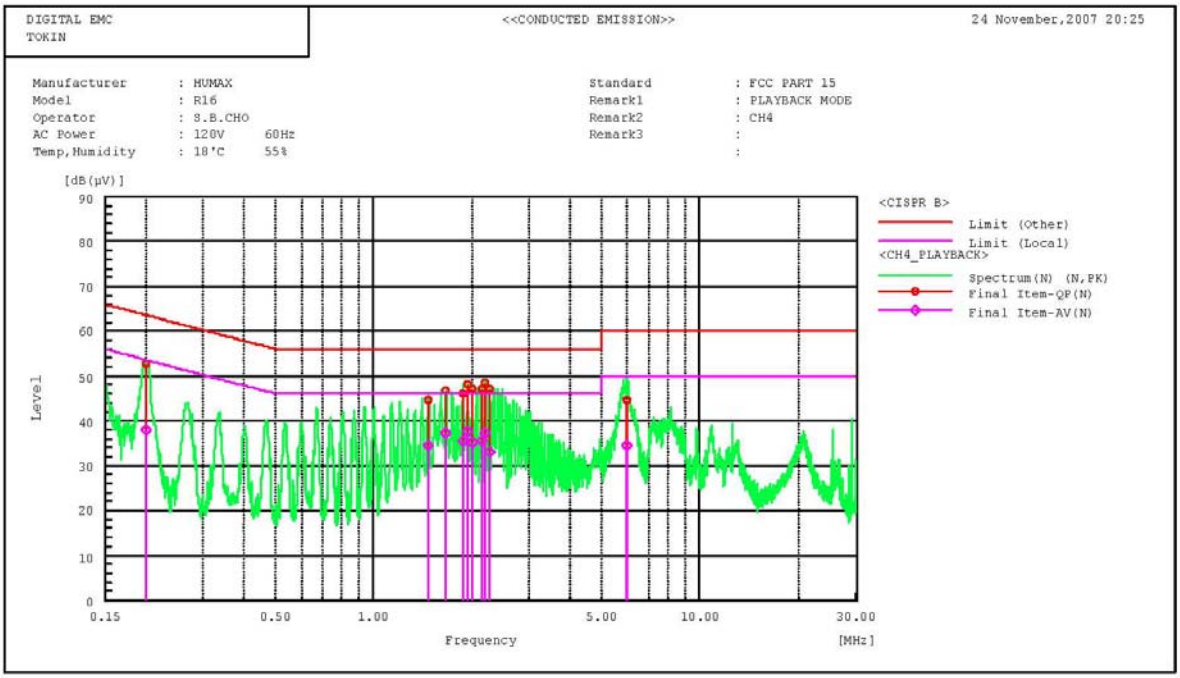
--- N Phase ---

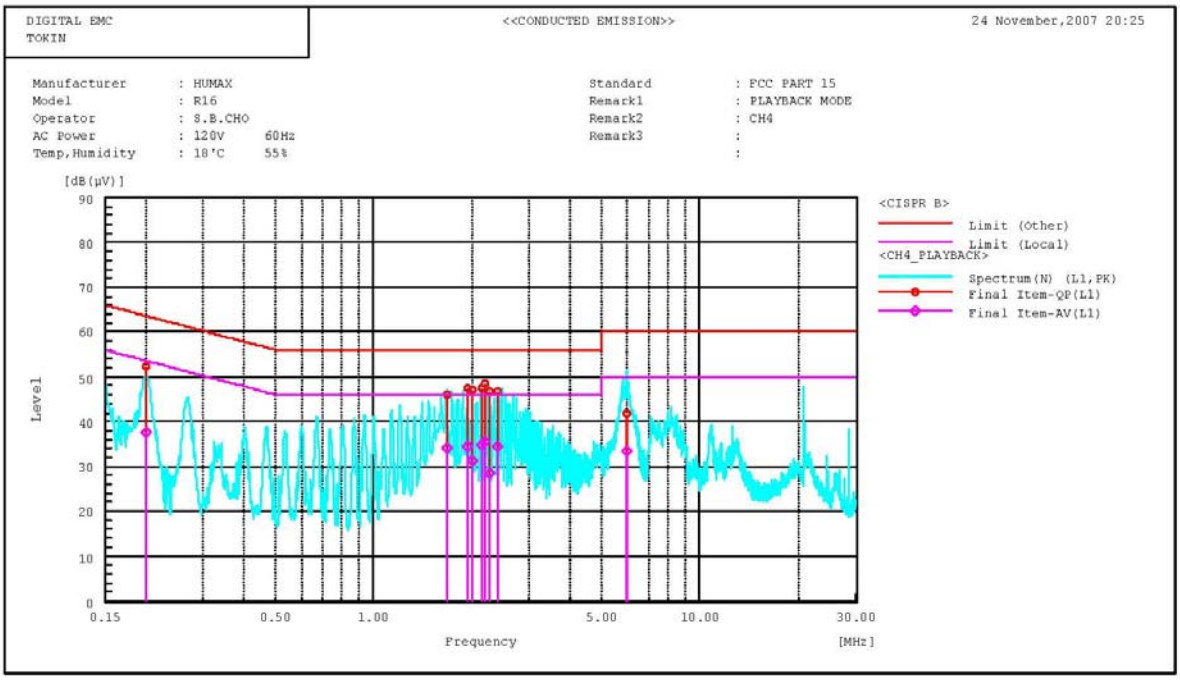
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.201	53.6	39.0	0.1	53.7	39.1	63.6	53.6	9.9	14.5	
2	1.204	43.1	32.2	0.1	43.2	32.3	56.0	46.0	12.8	13.7	
3	1.405	44.6	34.0	0.1	44.7	34.1	56.0	46.0	11.3	11.9	
4	1.673	45.8	34.8	0.1	45.9	34.9	56.0	46.0	10.1	11.1	
5	1.739	44.6	31.0	0.1	44.7	31.1	56.0	46.0	11.3	14.9	
6	1.873	45.8	35.0	0.1	45.9	35.1	56.0	46.0	10.1	10.9	
7	1.940	47.0	34.8	0.1	47.1	34.9	56.0	46.0	8.9	11.1	
8	2.074	45.0	31.3	0.1	45.1	31.4	56.0	46.0	10.9	14.6	
9	2.141	46.6	35.2	0.1	46.7	35.3	56.0	46.0	9.3	10.7	
10	2.208	47.4	34.1	0.1	47.5	34.2	56.0	46.0	8.5	11.8	
11	2.273	44.5	30.4	0.1	44.6	30.5	56.0	46.0	11.4	15.5	
12	2.342	44.6	30.9	0.1	44.7	31.0	56.0	46.0	11.3	15.0	
13	2.408	45.4	33.1	0.1	45.5	33.2	56.0	46.0	10.5	12.8	
14	2.475	45.6	31.8	0.1	45.7	31.9	56.0	46.0	10.3	14.1	
15	2.676	43.2	30.2	0.1	43.3	30.3	56.0	46.0	12.7	15.7	

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.200	53.8	38.6	0.2	54.0	38.8	63.6	53.6	9.6	14.8	
2	0.267	46.1	30.3	0.2	46.3	30.5	61.2	51.2	14.9	20.7	
3	1.204	41.3	26.6	0.2	41.5	26.8	56.0	46.0	14.5	19.2	
4	1.471	42.3	27.2	0.2	42.5	27.4	56.0	46.0	13.5	18.6	
5	1.673	44.5	30.2	0.2	44.7	30.4	56.0	46.0	11.3	15.6	
6	1.873	45.1	31.2	0.2	45.3	31.4	56.0	46.0	10.7	14.6	
7	1.940	46.4	31.5	0.2	46.6	31.7	56.0	46.0	9.4	14.3	
8	2.007	44.3	27.2	0.3	44.6	27.5	56.0	46.0	11.4	18.5	
9	2.141	46.6	32.2	0.3	46.9	32.5	56.0	46.0	9.1	13.5	
10	2.208	46.8	30.0	0.3	47.1	30.3	56.0	46.0	8.9	15.7	
11	2.274	44.2	27.4	0.3	44.5	27.7	56.0	46.0	11.5	18.3	
12	2.342	44.4	30.2	0.3	44.7	30.5	56.0	46.0	11.3	15.5	
13	2.408	45.6	31.8	0.3	45.9	32.1	56.0	46.0	10.1	13.9	
14	2.475	45.0	30.0	0.3	45.3	30.3	56.0	46.0	10.7	15.7	
15	2.542	42.1	28.4	0.3	42.4	28.7	56.0	46.0	13.6	17.3	

[CH 4]





DIGITAL EMC

<<CONDUCTED EMISSION>>

24 November,2007 20:25

Standard : FCC PART 15
Manufacturer : HUMAX
Model : R16
Operator : S.B.CHO
AC Power : 120V 60Hz
Temp,Humidity : 18°C 55%
Remark1 : PLAYBACK MODE
Remark2 : CH4
Remark3 :
:

Final Result

--- N Phase ---

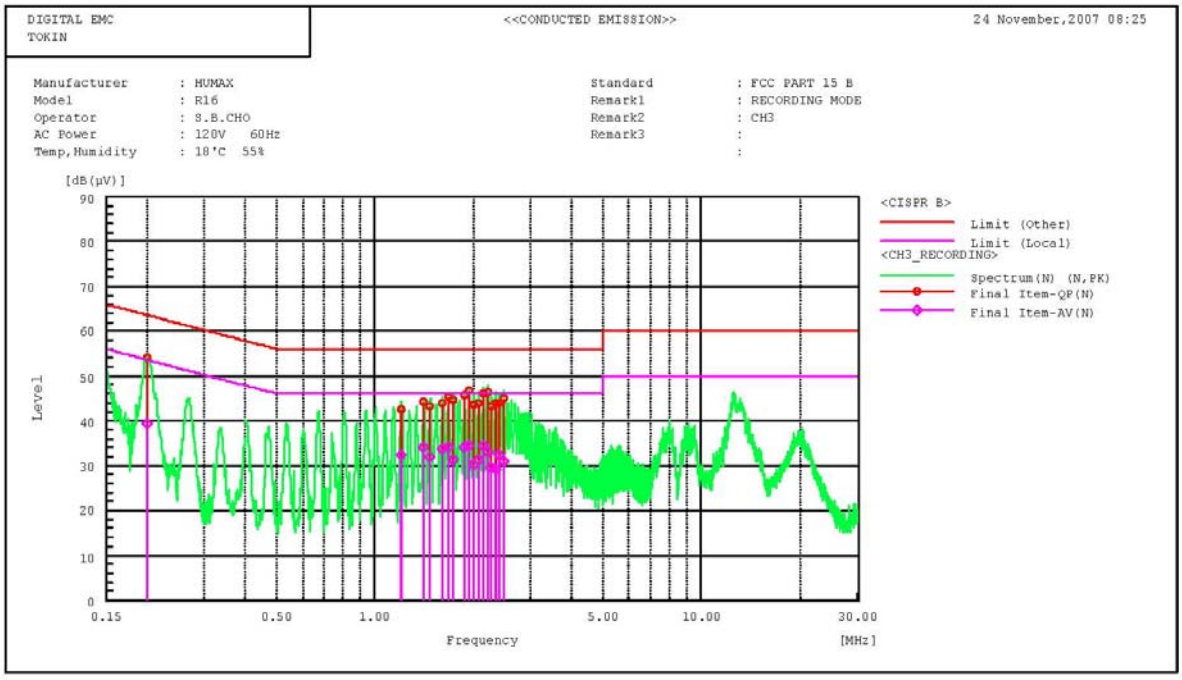
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.200	52.6	37.9	0.1	52.7	38.0	63.6	53.6	10.9	15.6	
2	1.468	44.6	34.2	0.1	44.7	34.3	56.0	46.0	11.3	11.7	
3	1.669	46.6	37.0	0.1	46.7	37.1	56.0	46.0	9.3	8.9	
4	1.870	46.0	35.3	0.1	46.1	35.4	56.0	46.0	9.9	10.6	
5	1.937	47.9	37.6	0.1	48.0	37.7	56.0	46.0	8.0	8.3	
6	2.004	47.0	35.0	0.1	47.1	35.1	56.0	46.0	8.9	10.9	
7	2.138	47.0	35.3	0.1	47.1	35.4	56.0	46.0	8.9	10.6	
8	2.204	48.3	37.1	0.1	48.4	37.2	56.0	46.0	7.6	8.8	
9	2.271	47.0	32.9	0.1	47.1	33.0	56.0	46.0	8.9	13.0	
10	6.000	44.2	34.2	0.3	44.5	34.5	60.0	50.0	15.5	15.5	

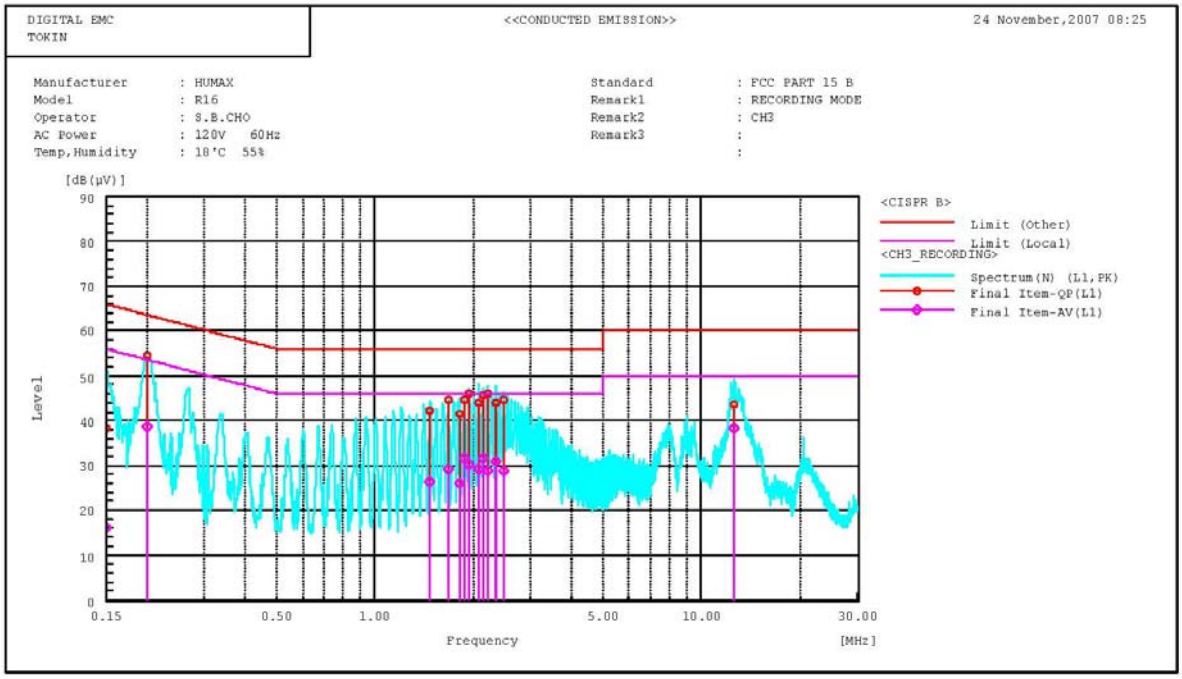
--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.200	52.3	37.3	0.2	52.5	37.5	63.6	53.6	11.1	16.1	
2	1.670	45.8	33.8	0.2	46.0	34.0	56.0	46.0	10.0	12.0	
3	1.936	47.4	34.4	0.2	47.6	34.6	56.0	46.0	8.4	11.4	
4	2.003	46.8	31.0	0.3	47.1	31.3	56.0	46.0	8.9	14.7	
5	2.138	47.0	34.6	0.3	47.3	34.9	56.0	46.0	8.7	11.1	
6	2.204	48.2	35.2	0.3	48.5	35.5	56.0	46.0	7.5	10.5	
7	2.271	46.6	28.2	0.3	46.9	28.5	56.0	46.0	9.1	17.5	
8	2.405	46.4	34.2	0.3	46.7	34.5	56.0	46.0	9.3	11.5	
9	5.962	41.3	33.0	0.4	41.7	33.4	60.0	50.0	18.3	16.6	

Conducted Emission(Receiving & Recording mode)

[CH 3]





********** DIGITAL EMC **********

<<CONDUCTED EMISSION>>

24 November,2007 08:25

Standard : FCC PART 15 B
Manufacturer : HUMAX
Model : R16
Operator : S.B.CHO
AC Power : 120V 60Hz
Temp,Humidity : 18°C 55%
Remark1 : RECORDING MODE
Remark2 : CH3
Remark3 :
:

****

Final Result

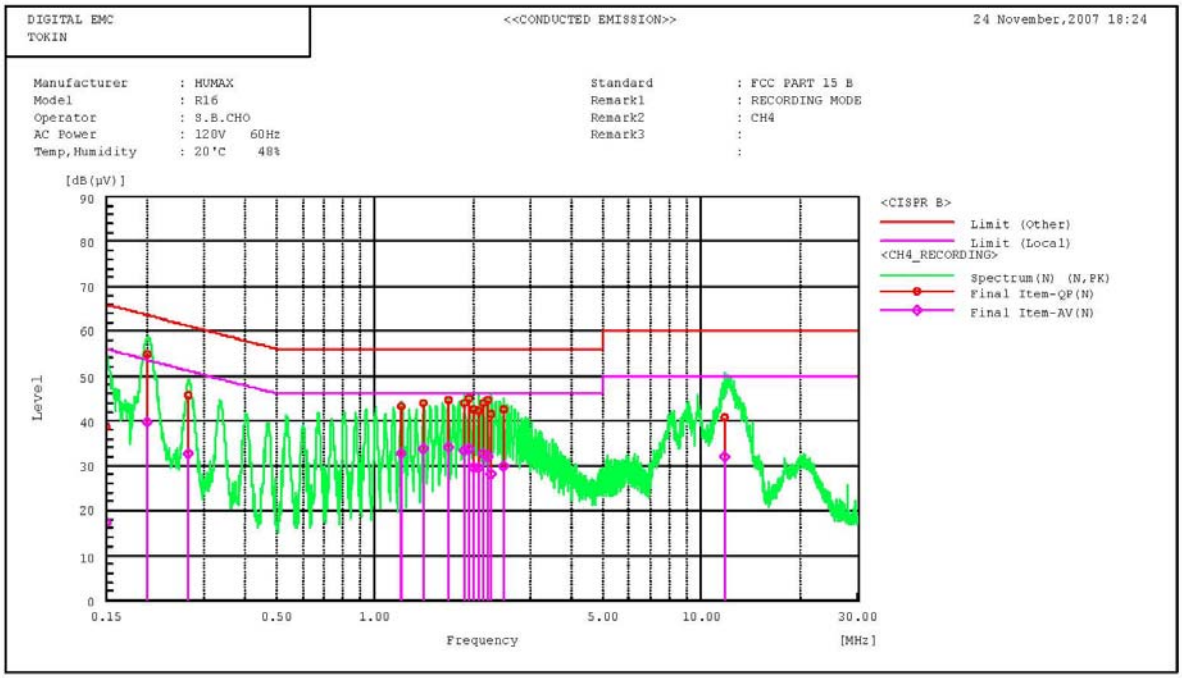
--- N Phase ---

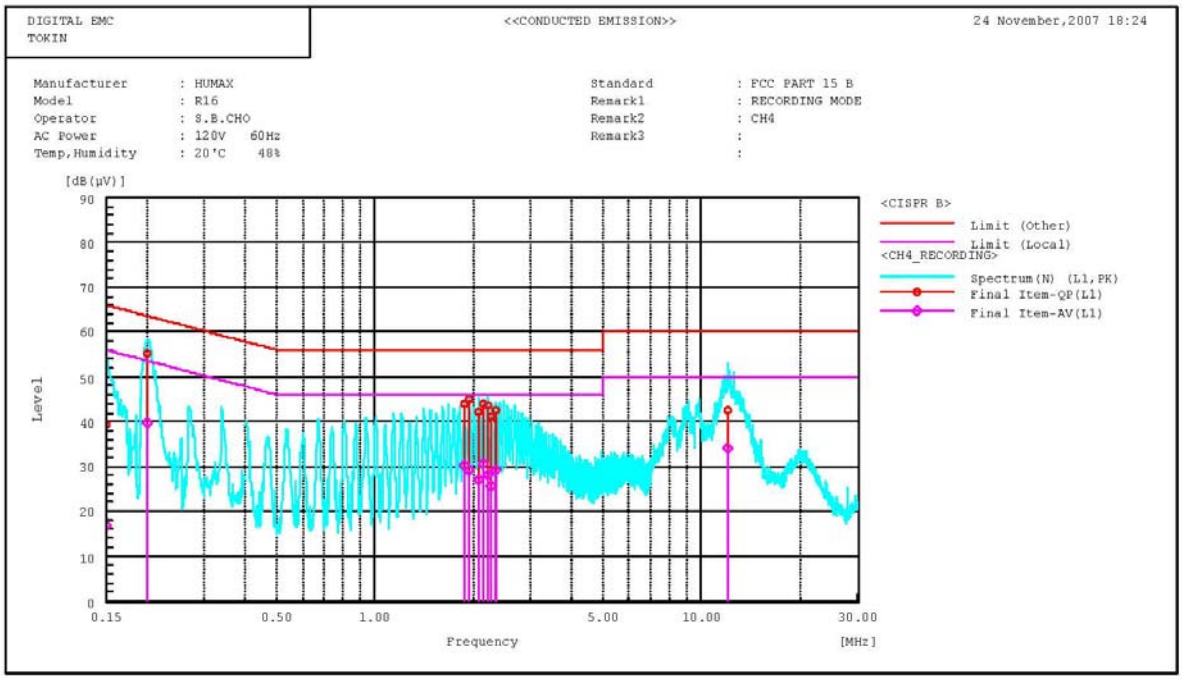
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.200	54.2	39.4	0.1	54.3	39.5	63.6	53.6	9.3	14.1	
2	1.204	42.6	32.2	0.1	42.7	32.3	56.0	46.0	13.3	13.7	
3	1.405	44.2	34.0	0.1	44.3	34.1	56.0	46.0	11.7	11.9	
4	1.472	43.1	32.0	0.1	43.2	32.1	56.0	46.0	12.8	13.9	
5	1.606	44.0	33.6	0.1	44.1	33.7	56.0	46.0	11.9	12.3	
6	1.673	45.3	34.1	0.1	45.4	34.2	56.0	46.0	10.6	11.8	
7	1.739	44.4	31.3	0.1	44.5	31.4	56.0	46.0	11.5	14.6	
8	1.874	45.6	34.0	0.1	45.7	34.1	56.0	46.0	10.3	11.9	
9	1.940	46.6	34.4	0.1	46.7	34.5	56.0	46.0	9.3	11.5	
10	2.007	43.5	30.0	0.1	43.6	30.1	56.0	46.0	12.4	15.9	
11	2.075	44.0	31.3	0.1	44.1	31.4	56.0	46.0	11.9	14.6	
12	2.142	45.9	34.2	0.1	46.0	34.3	56.0	46.0	10.0	11.7	
13	2.207	46.2	32.8	0.1	46.3	32.9	56.0	46.0	9.7	13.1	
14	2.276	43.0	29.6	0.1	43.1	29.7	56.0	46.0	12.9	16.3	
15	2.340	43.7	29.0	0.1	43.8	29.1	56.0	46.0	12.2	16.9	
16	2.411	43.8	32.2	0.1	43.9	32.3	56.0	46.0	12.1	13.7	
17	2.475	45.0	30.9	0.1	45.1	31.0	56.0	46.0	10.9	15.0	

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.150	38.2	15.8	0.2	38.4	16.0	66.0	56.0	27.6	40.0	
2	0.200	54.2	38.6	0.2	54.4	38.8	63.6	53.6	9.2	14.8	
3	1.472	42.1	26.3	0.2	42.3	26.5	56.0	46.0	13.7	19.5	
4	1.673	44.4	29.0	0.2	44.6	29.2	56.0	46.0	11.4	16.8	
5	1.807	41.3	25.7	0.2	41.5	25.9	56.0	46.0	14.5	20.1	
6	1.874	44.6	31.4	0.2	44.8	31.6	56.0	46.0	11.2	14.4	
7	1.940	45.8	30.0	0.2	46.0	30.2	56.0	46.0	10.0	15.8	
8	2.074	43.7	29.0	0.3	44.0	29.3	56.0	46.0	12.0	16.7	
9	2.142	45.5	31.5	0.3	45.8	31.8	56.0	46.0	10.2	14.2	
10	2.209	45.9	28.7	0.3	46.2	29.0	56.0	46.0	9.8	17.0	
11	2.342	43.8	30.6	0.3	44.1	30.9	56.0	46.0	11.9	15.1	
12	2.476	44.2	28.5	0.3	44.5	28.8	56.0	46.0	11.5	17.2	
13	12.551	42.8	37.7	0.7	43.5	38.4	60.0	50.0	16.5	11.6	

[CH 4]





********** DIGITAL EMC **********

<<CONDUCTED EMISSION>>

24 November,2007 18:24

Standard : FCC PART 15 B
Manufacturer : HUMAX
Model : R16
Operator : S.B.CHO
AC Power : 120V 60Hz
Temp,Humidity : 20°C 48%
Remark1 : RECORDING MODE
Remark2 : CH4
Remark3 :
:

****

Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.150	38.6	17.0	0.1	38.7	17.1	66.0	56.0	27.3	38.9	
2	0.201	54.7	39.8	0.1	54.8	39.9	63.6	53.6	8.8	13.7	
3	0.268	45.7	32.5	0.1	45.8	32.6	61.2	51.2	15.4	18.6	
4	1.205	43.0	32.5	0.1	43.1	32.6	56.0	46.0	12.9	13.4	
5	1.406	44.0	33.8	0.1	44.1	33.9	56.0	46.0	11.9	12.1	
6	1.674	44.5	34.0	0.1	44.6	34.1	56.0	46.0	11.4	11.9	
7	1.874	44.0	33.4	0.1	44.1	33.5	56.0	46.0	11.9	12.5	
8	1.941	45.0	33.8	0.1	45.1	33.9	56.0	46.0	10.9	12.1	
9	2.009	42.6	29.5	0.1	42.7	29.6	56.0	46.0	13.3	16.4	
10	2.076	42.2	29.5	0.1	42.3	29.6	56.0	46.0	13.7	16.4	
11	2.142	43.8	32.6	0.1	43.9	32.7	56.0	46.0	12.1	13.3	
12	2.209	44.6	31.8	0.1	44.7	31.9	56.0	46.0	11.3	14.1	
13	2.275	41.3	28.0	0.1	41.4	28.1	56.0	46.0	14.6	17.9	
14	2.476	42.5	29.9	0.1	42.6	30.0	56.0	46.0	13.4	16.0	
15	11.805	40.3	31.5	0.6	40.9	32.1	60.0	50.0	19.1	17.9	

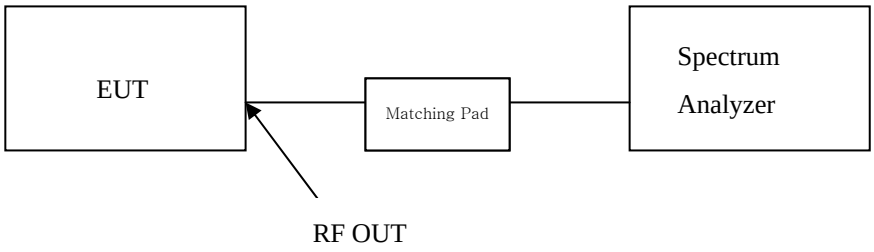
--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.150	39.1	16.8	0.2	39.3	17.0	66.0	56.0	26.7	39.0	
2	0.200	55.0	39.5	0.2	55.2	39.7	63.6	53.6	8.4	13.9	
3	1.875	43.7	30.0	0.2	43.9	30.2	56.0	46.0	12.1	15.8	
4	1.941	44.9	29.0	0.2	45.1	29.2	56.0	46.0	10.9	16.8	
5	2.076	42.0	26.8	0.3	42.3	27.1	56.0	46.0	13.7	18.9	
6	2.142	43.7	30.3	0.3	44.0	30.6	56.0	46.0	12.0	15.4	
7	2.208	43.4	28.0	0.3	43.7	28.3	56.0	46.0	12.3	17.7	
8	2.276	40.8	25.4	0.3	41.1	25.7	56.0	46.0	14.9	20.3	
9	2.343	42.1	29.0	0.3	42.4	29.3	56.0	46.0	13.6	16.7	
10	12.022	41.9	33.3	0.7	42.6	34.0	60.0	50.0	17.4	16.0	

3.2.3 Output Signal Level Measurement

Procedure:

The signal level was measured by direct connection to the spectrum analyzer with 50/75ohm matching transformer between the spectrum analyzer and the TV interface device. The RF output signal level measured RMS voltage was the highest RF level present at the output terminals during normal use of the device. Measurements were made of the levels of both the visual and aural of TV channel 3 and 4.



Measurement Result: Complies

- Refer to the Next page

Mode	Channel		Frequency [MHz]	Reading [dBμV]	Correction Factor[dB]	Results [dBμV]	Limits [dBμV]	Margin [dB]
Playback	3	Audio	56.74	39.80	8.0	47.80	56.5	8.70
		Video	61.26	54.78	8.0	62.78	69.5	6.72
		Audio	65.78	39.92	8.0	47.92	56.5	8.58
Recording	3	Audio	56.74	39.79	8.0	47.79	56.5	8.71
		Video	61.26	54.76	8.0	62.76	69.5	6.74
		Audio	65.78	39.93	8.0	47.93	56.5	8.57
Playback	4	Audio	62.74	39.54	8.0	47.54	56.5	8.96
		Video	67.26	54.27	8.0	62.27	69.5	7.23
		Audio	71.78	39.13	8.0	47.13	56.5	9.37
Recording	4	Audio	62.74	39.51	8.0	47.51	56.5	8.99
		Video	67.26	53.36	8.0	61.36	69.5	8.14
		Audio	71.78	39.14	8.0	47.14	56.5	9.36

Minimum Standard: LIMIT

The voltage corresponding to the peak envelop power of the video modulated signal during maximum amplitude peaks across a resistance(R ohm) matching the rated output impedance of the device, must not exceed 346.4 times the square root (R)[uV] for all other TV interface device. The voltage corresponding to peak envelop power of the audio modulated signal, if provide by TV interface device, must not exceed 77.5 times the square root of (R)[uV] for all other TV interface device.(Sec 15.115(b).(1).(ii)

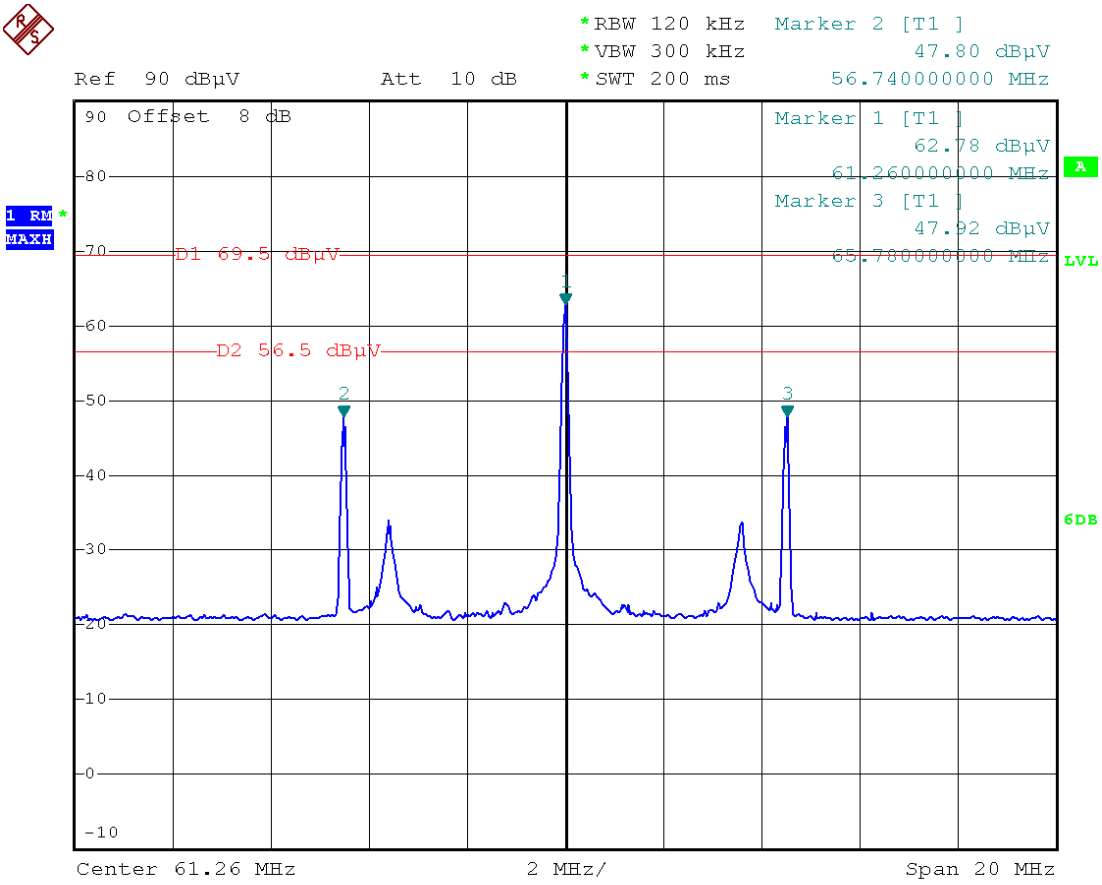
Note1 : LIMIT calculation

Video Signal : 346.4*√75 = 2999.9[uV] = 69.54[dBuV]

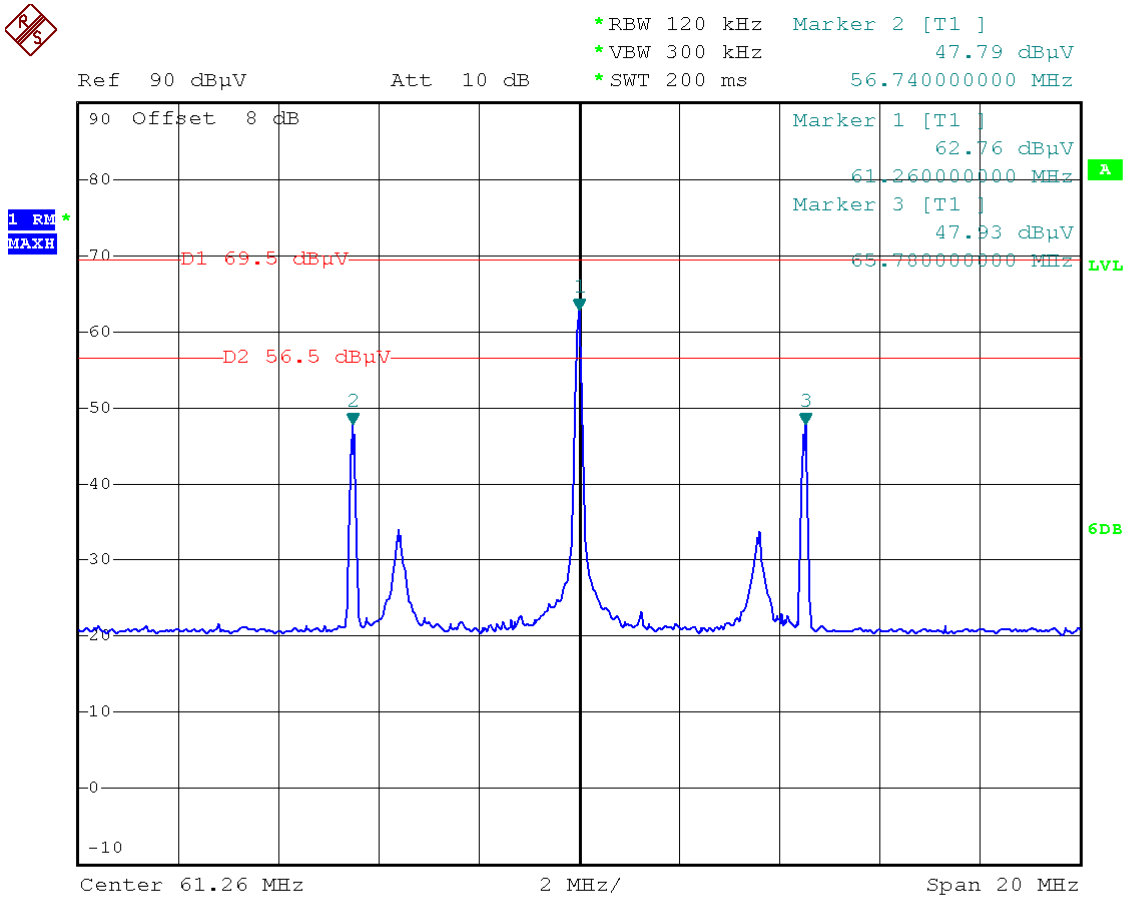
Audio Signal : 77.5*√75 = 671.17[uV] = 56.53[dBuV]

Note2 : Result = Reading + Correction Factor(Cable Loss + Matching Loss)

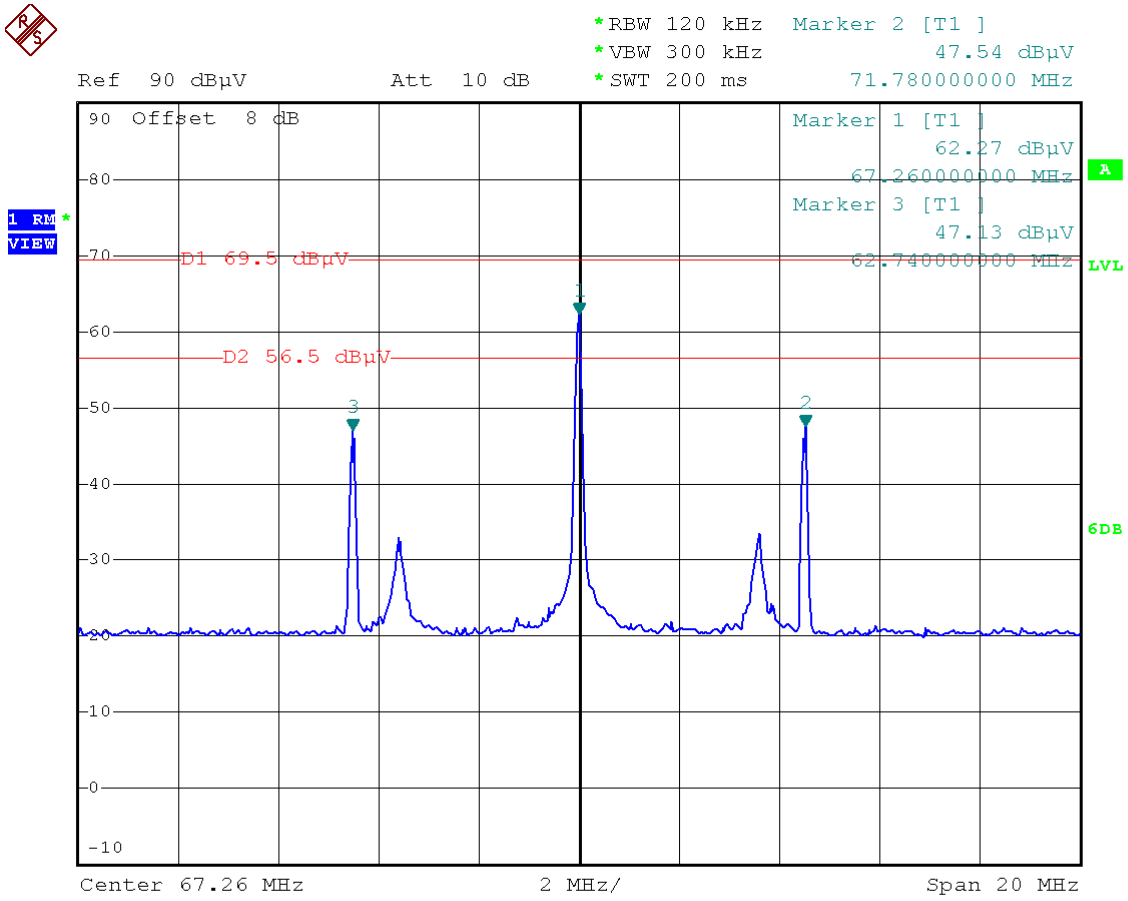
Output Signal Level Measurement(CH3 Playback mode)



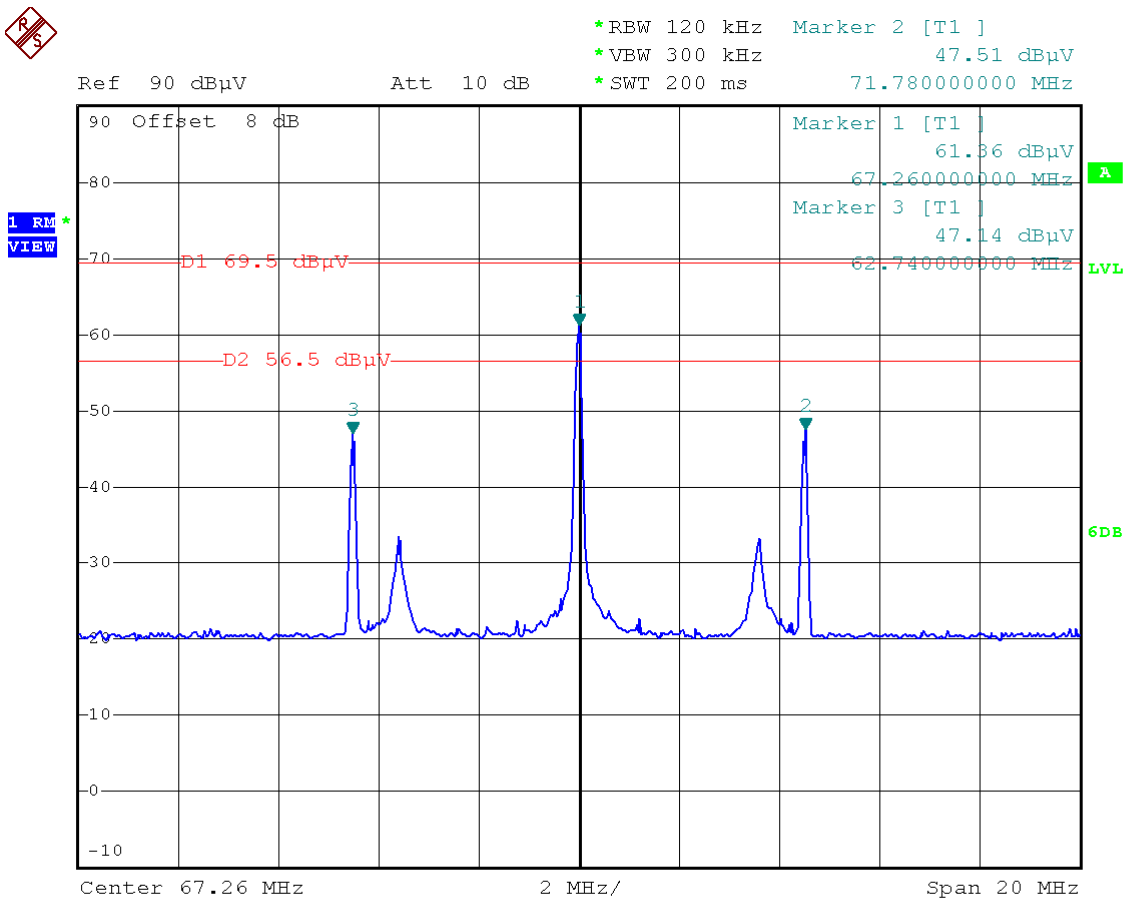
Output Signal Level Measurement(CH3 Recording mode)



Output Signal Level Measurement(CH4 Playback mode)



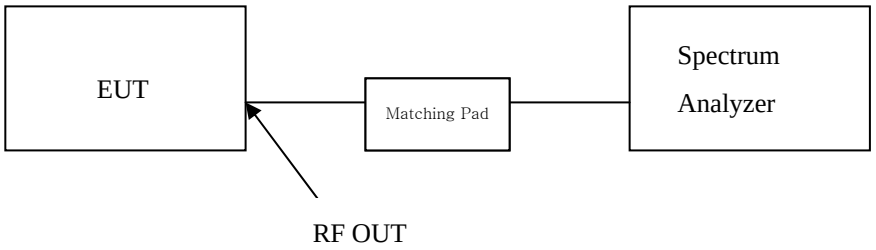
Output Signal Level Measurement(CH4 Recording mode)



3.2.4 Output Terminal Conducted Spurious Emissions Measurement

Procedure:

At any RF output terminal, the maximum measured RMS voltage, in microvolts, corresponding to the Peak envelope power of the modulated signal during maximum amplitude peaks across a resistance(R in ohms) matching the rated output impedance of the TV interface device, of any emission appearing on Frequencies removed by more than 4.6MHz below or 7.4MHz above the video carrier frequency on frequencies interface device os operated shall not exceed the following For all other TV interface devices, 10.95 times the square root of(R)



Measurement Result: **Complies**

Playback mode

Channel	Frequency [MHz]	Reading [dBμV]	Correction Factor[dB]	Results [dBμV]	Limits [dBμV]	Margin [dB]
3	"Refer to the test plots on page 25."				39.5	-
4	"Refer to the test plots on page 27."				39.5	-

Receiving & Recording mode

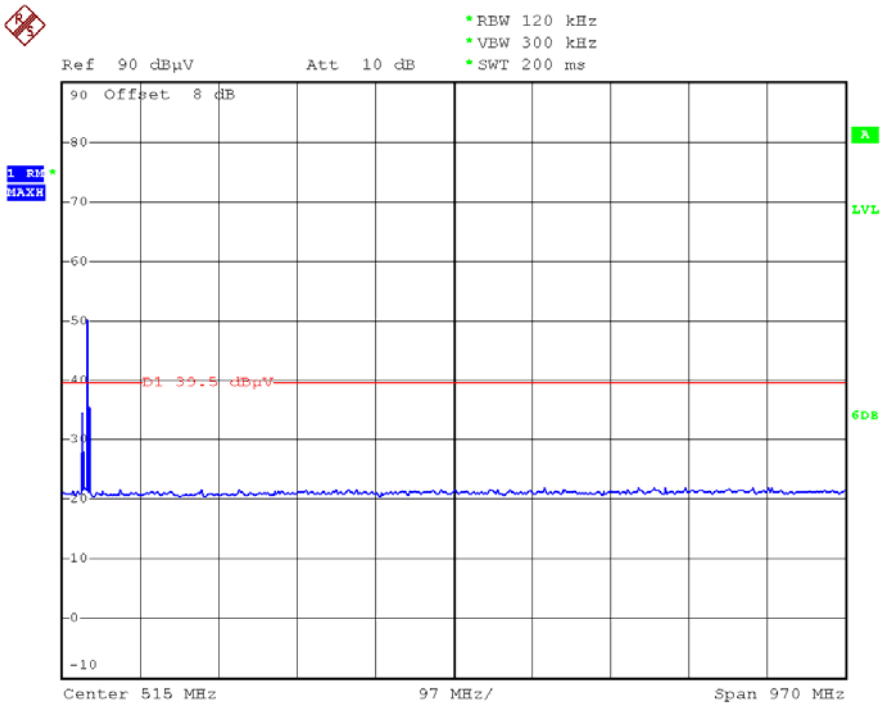
Channel	Frequency [MHz]	Reading [dBμV]	Correction Factor[dB]	Results [dBμV]	Limits [dBμV]	Margin [dB]
3	"Refer to the test plots on page 26."				39.5	-
4	"Refer to the test plots on page 28."				39.5	-

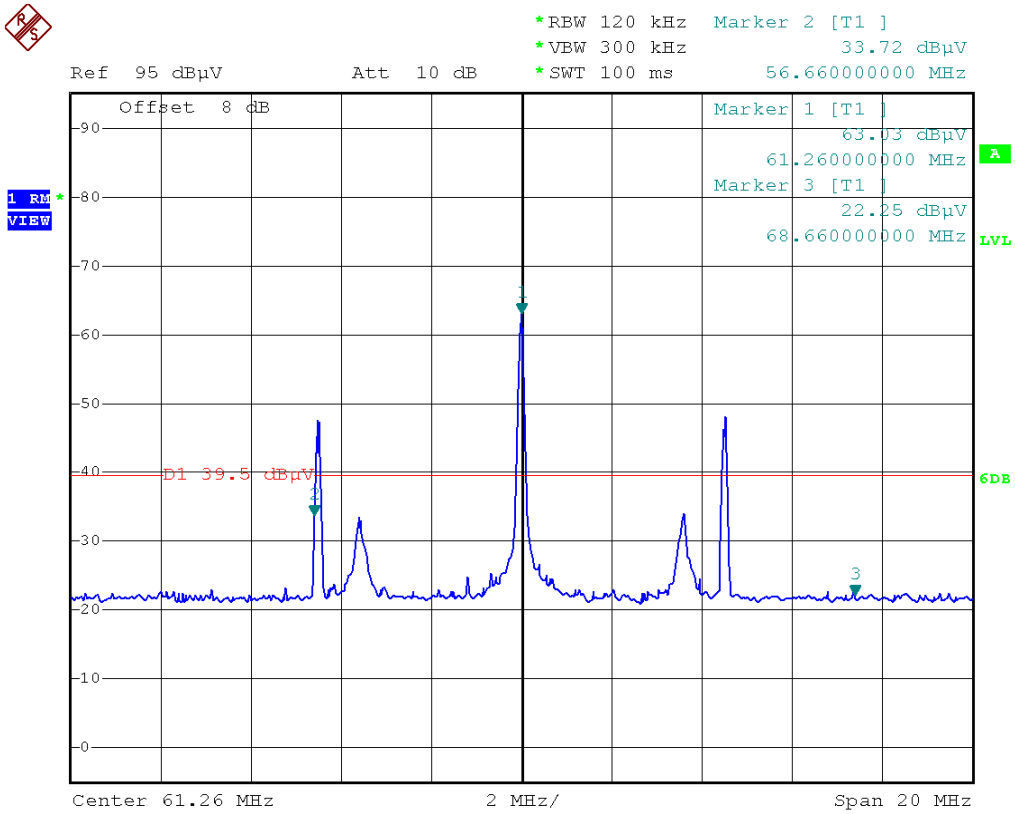
Note 1 : LIMIT calculation

10.95*√75 = 94.83[uV] = 39.53[dBuV]

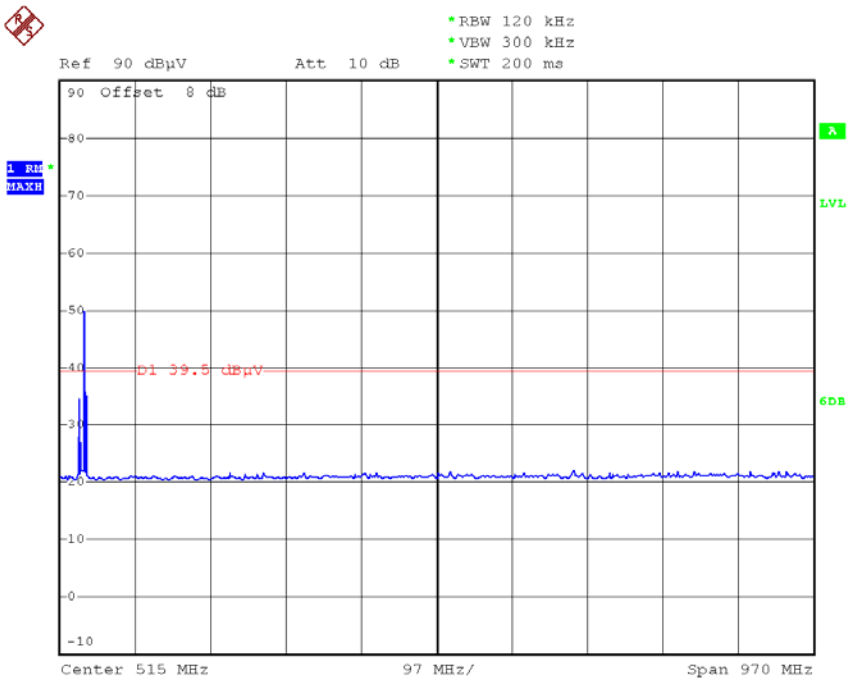
Note2 : Result = Reading + Correction Factor(Cable Loss + Matching Loss)

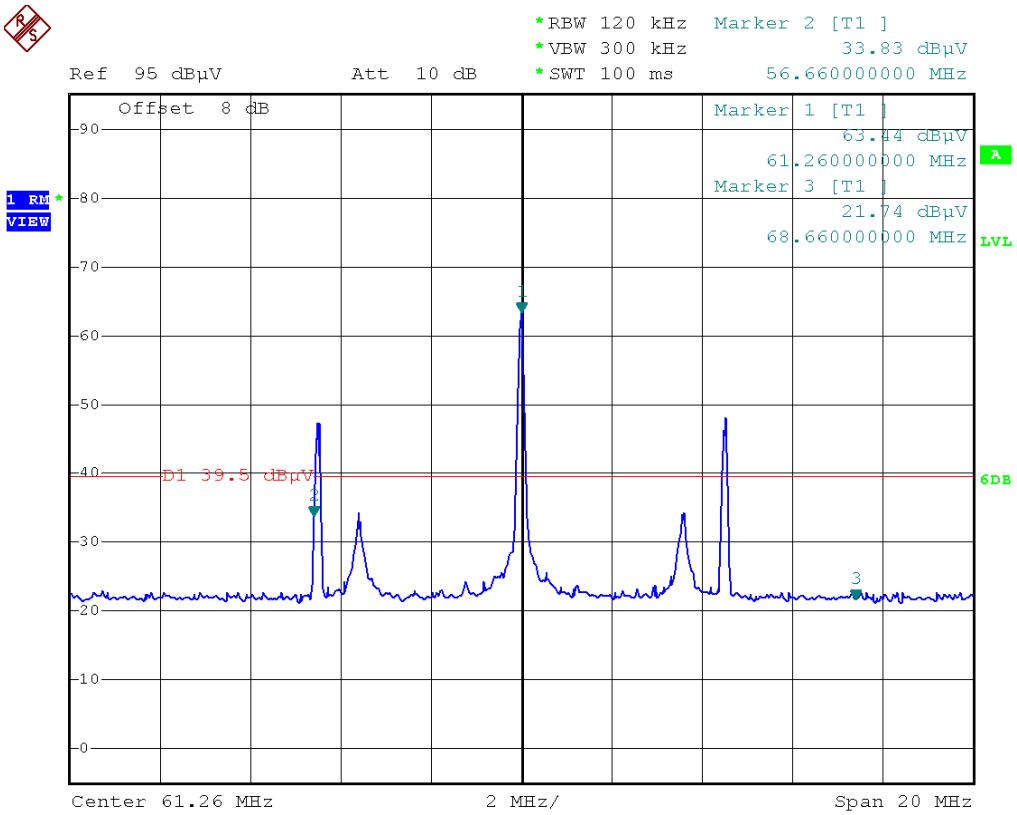
Output Terminal Conducted Spurious Emissions Measurement(CH3 Playback mode)



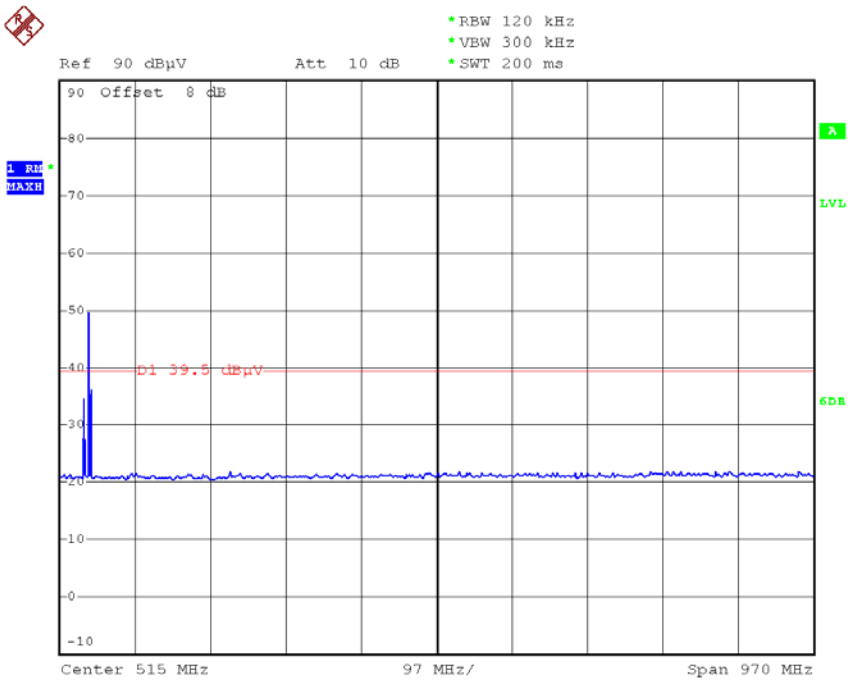


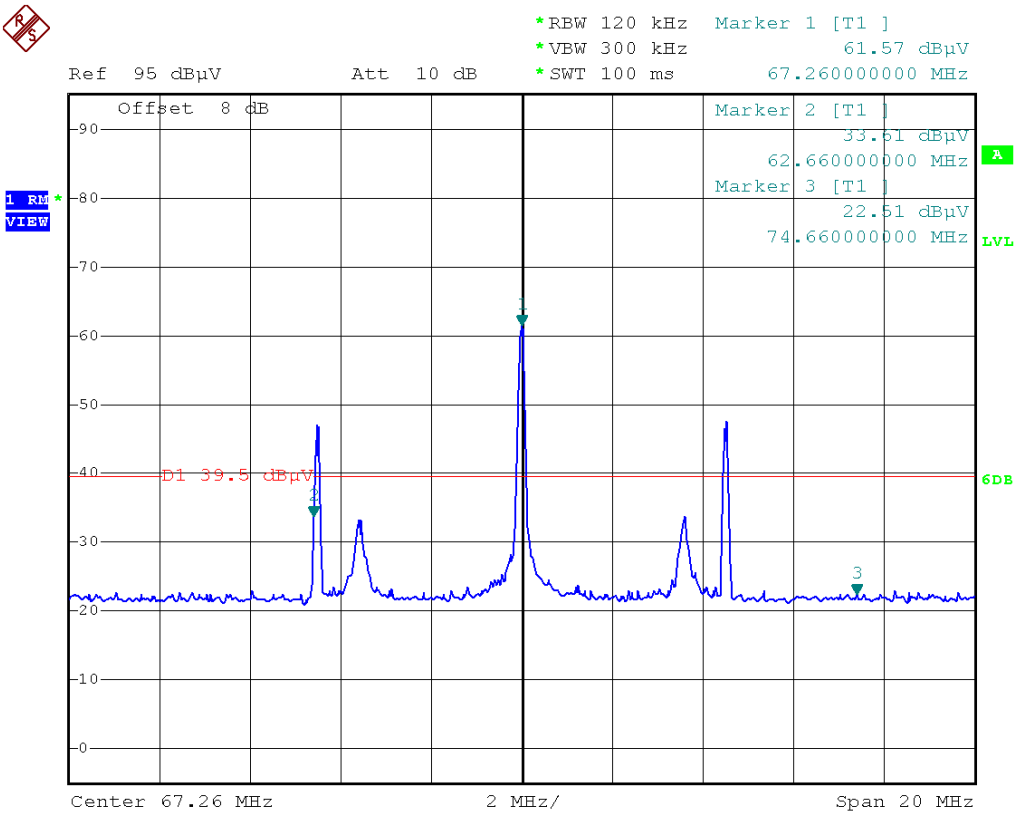
Output Terminal Conducted Spurious Emissions Measurement(CH3 Recording mode)



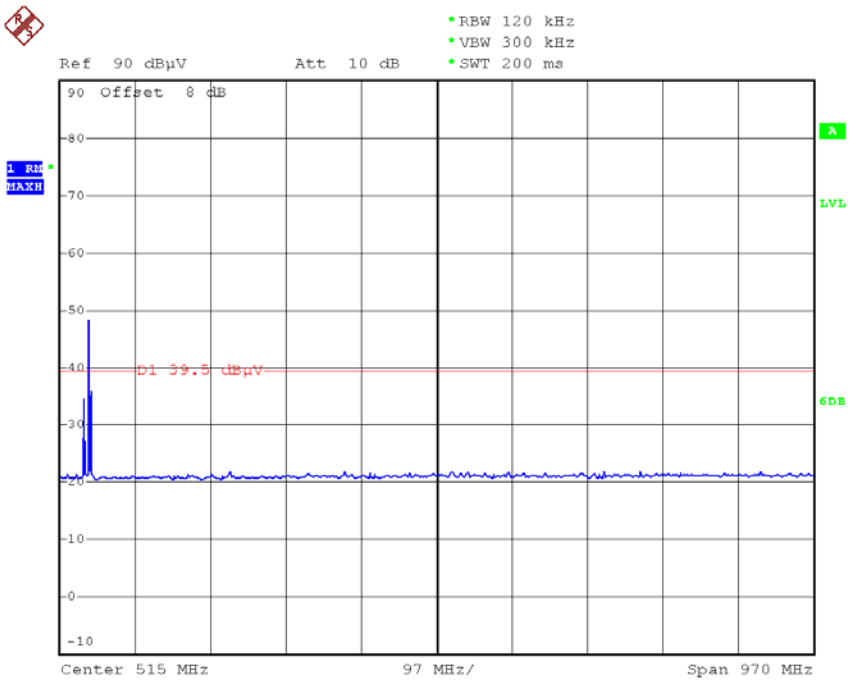


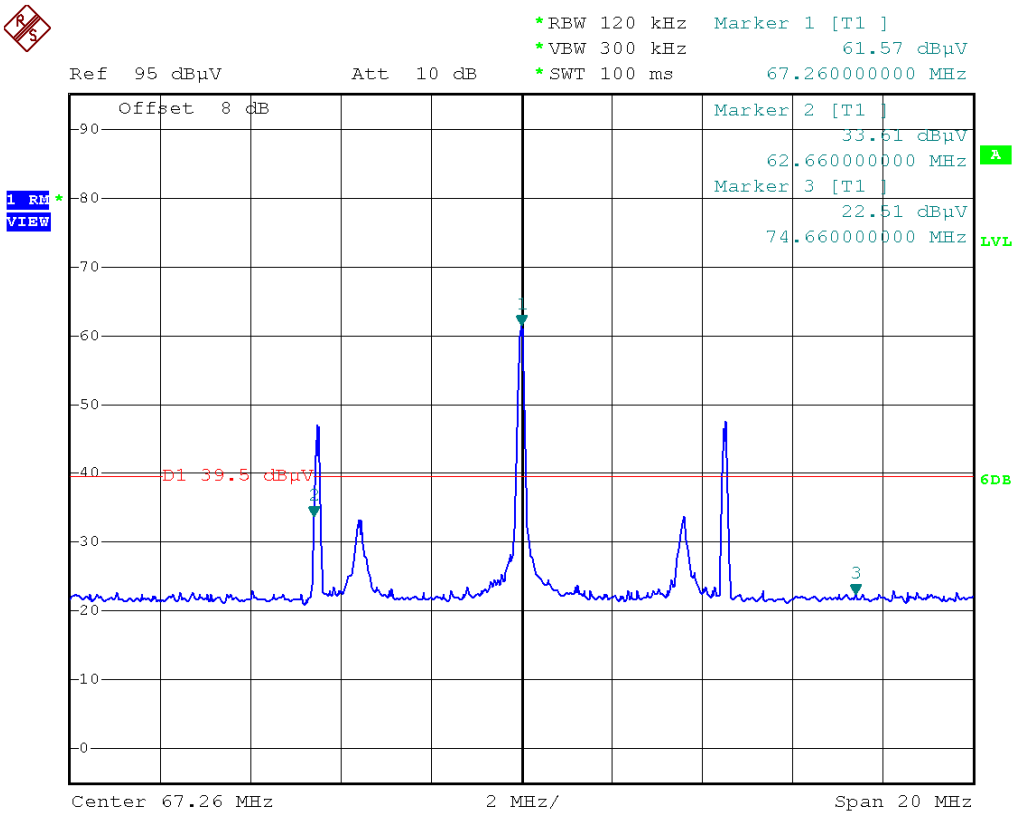
Output Terminal Conducted Spurious Emissions Measurement(CH4 Playback mode)





Output Terminal Conducted Spurious Emissions Measurement(CH4 Recording mode)

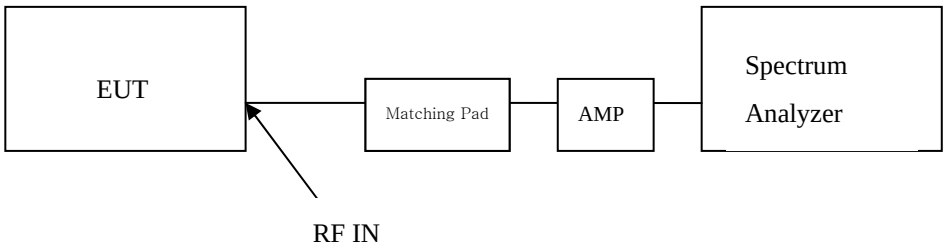




3.2.5 Transfer Switch Isolation Measurement

Procedure:

A TV interface device shall be equipped with a transfer switch for connecting the antenna terminals of a receiver selectively either to the receiving antenna or to the radio frequency output of the TV interface device, subject to the following.For all other TV interface devices, the maximum voltage, corresponding to the peak envelope power of the modulated video signal during maximum amplitude peaks, in microvolts, appearing at the receiving antenna inpur terminals when terminated with a resistance(R in ohms) matching the rated impedance of the antenna input of the switch, shall not exceed 0.346 times the square root of (R)



Measurement Result: Complies

Playback mode

Channel	Frequency [MHz]	Reading [dBμV]	Correction Factor[dB]	Results [dBμV]	Limits [dBμV]	Margin [dB]
3	"Not found any emissions during the test"				9.5	-
4	"Not found any emissions during the test"				9.5	-

Recording mode

Channel	Frequency [MHz]	Reading [dBμV]	Correction Factor[dB]	Results [dBμV]	Limits [dBμV]	Margin [dB]
3	"Not found any emissions during the test"				9.5	-
4	"Not found any emissions during the test"				9.5	-

Note 1 : LIMIT calculation

0.346*√75 = 2.996[uV] = 9.53[dBuV]

Note2 : Result = Reading + Correction Factor(Cable Loss + Matching Loss)

APPENDIX

TEST EQUIPMENT USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

	Type	Manufacturer	Model	Cal.Date (dd/mm/yy)	Next Cal.Date (dd/mm/yy)	S/N
01	Spectrum Analyzer	HP	8591E	16/04/07	16/04/08	3649A05889
02	EMI TEST RECEIVER	R&S	ESU	25/01/07	25/01/08	100014
03	Spectrum Analyzer	R&S	FSP	06/09/07	06/09/08	100385
04	Artificial mains network	R&S	ESH2-Z5	08/11/07	08/11/08	828739/006
05	Artificial mains network	Kyoritsu Electrical Works	KNW-242	06/10/07	06/10/08	8-654-15
06	RFI/Field intensity Meter	Kyoritsu Electrical Works	KNM-2402	06/09/07	06/09/08	4N-170-3
07	COTROLLER	TOKIN	5905A	N/A	N/A	N/A
08	DRIVER	TOKIN	5902T2	N/A	N/A	14174
09	Amplifier (25dB)	Agilent	8447D	08/08/07	08/08/08	2443A03690
10	BILOG ANTENNA	SCHAFFNER	CBL6112B	08/06/07	08/06/08	2737
11	HORN ANT	EMCO	3115	10/08/07	10/08/08	6419
12	MATCHING PAD	JFW	57Z-3G	11/10/07	11/10/08	N/A

