



# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No. : E04OR-003

Applicant : DVICO INC.

Address : Onse Telecom B/D 4F, 192-2, Goomi-Dong, Boondang-Ku, Sungnam-City,  
Kyungki-Do, 463-810, Korea

Manufacturer : DVICO INC.

Address : Onse Telecom B/D 4F, 192-2, Goomi-Dong, Boondang-Ku, Sungnam-City,  
Kyungki-Do, 463-810, Korea

Type of Equipment : Digital TV Receiver Card

FCC ID : PAHFUSIONHDTV

Model Name : FusionHDTV3GoldT

Serial number : N/A

Total page of Report : 13 pages (including this page)

Date of Incoming : April 26, 2004


Date of Issuing : October 01, 2004


## SUMMARY

The equipment complies with the regulation; ***FCC CFR 47 PART 15 SUBPART B, Class B.***

This test report contains only the result of a single test of the sample supplied for the examination.

It is not a general valid assessment of the features of the respective products of the mass-production

Reviewed by:   
Sue-Yong, Lee / Test Engineer  
EMC Div.  
ONETECH Corp.

Approved by:   
G. W. Lee / Chief Engineer  
EMC Div.  
ONETECH Corp.



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**1. VERIFICATION OF COMPLIANCE**

APPLICANT : DVICO INC.  
ADDRESS : Onse Telecom B/D 4F, 192-2, Goomi-Dong, Boondang-Ku, Sungnam-City, Kyungki-Do,  
463-810, Korea  
CONTACT PERSON : Mr. Bobkim / Senior Engineer  
TELEPHONE NO : +82-31-728-1394  
FCC ID : PAHFUSIONHDTV  
MODEL NO/NAME : FusionHDTV3GoldT  
SERIAL NUMBER : N/A  
DATE : October 01, 2004

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	Digital TV Receiver Card
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4: 2001
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC CFR 47 PART 15 §15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- This device has shown compliance with the conducted emissions limits in 15.107 adopted under FCC 02-107 (ET Docket 98-80). The device may be marketed after July 11, 2005 affected by the 15.37(j) transition provisions.
- The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.



## 2. GENERAL INFORMATION

### 2.1 Product Description

The DVICO INC., Model FusionHDTV3GoldT (referred to as the EUT in this report) is a Digital TV Receiver Card which is PCI-based card for enjoying Digital TV on a PC. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	PC Card (PCI Slot)
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	50 MHz and 28.6363 MHz on Main Board
NUMBER OF LAYERS	4 Layers
USED TUNER	Model No: DTT7611, Manufacturer: Thomson
ELECTRICAL RATING	DC 5V and 12V supplied by a personal computer
EXTERNAL TERMINALS	S-VHS In, CVBS In, Audio L/R In

### 2.2 Model Differences

The difference(s) compared to the EUT is as follows: none

### 2.3 Related Submittal(s) / Grant(s)

Original submittal only



## 2.4 Test System Details

The model numbers for all the equipments which were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
FusionHDTV3GoldT	DVICO INC..	PAHFUSIONHDTV	Digital TV Receiver Card (EUT)	Inside PC
GX240	DELL Computer	DoC	PC	-
X06-08477	Microsoft Corp.	DoC	MOUSE	PC
SK-8110	SILITEK	DoC	KEYBOARD	PC
2225C	HP	DSI6XU2225	PRINTER	PC
E551	DELL Computer Corp.	DoC	MONITOR	PC
GHV-S9990	GoldStar	N/A	VCR	EUT
020-0470	CADINAL	GDE0196	MODEM	PC
LT 416	LEADER	N/A	Pattern Generator	EUT

## 2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2001. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

## 2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-City, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 18, 2002. (Registration Number: 92819)



### 3. SYSTEM TEST CONFIGURATION

#### 3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	DVICO CO., LTD.	Fusion HDTV Silver Plus	PAHFUSIONHDTV

#### 3.2 EUT exercise Software

The EUT was received the signal of the terrestrial broadcast continuously via antenna input port and displaying the picture on the screen of the PC monitor.

#### 3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
PC	N	-	1.5(P)
MOUSE	N/A	N	1.5(D)
KEYBOARD	N/A	N	1.5(D)
PRINTER	N	Y	1.5(P), 1.5(D)
MONITOR	N	Y	1.5(P), 1.8(D)
VCR	N	N	1.5(P), 1.5(D)
MODEM	N	Y	1.5(P), 1.5(D)
PATTERN GENERATOR	N	Y	1.5(P), 1.5(D)

\* The marked "(P)" means the Power Cable and "(D)" means Signal Cable.

#### 3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
PC	-	-	-	-
MOUSE	N	N/A	Y	PC END
KEYBOARD	N	N/A	Y	PC END
PRINTER	N	N/A	Y	BOTH END
MONITOR	Y	PC END	Y	PC END
VCR	N	N/A	Y	BOTH END
MODEM	N	N/A	Y	BOTH END
PATTERN GENERATOR	N	N/A	Y	BOTH END



### 3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There was no Modified items during EMI test”

### 3.6 Configuration of Test System

**Line Conducted Test:** The EUT was inserted into the PC, and the power line of PC was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2001 7.2.3 to determine the worse operating conditions.

**Radiated Emission Test:** Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2001 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

**4. PRELIMINARY TEST****4.1 AC Power line Conducted Emission Test**

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The signal of the terrestrial broadcast receiving and displaying the picture on the screen of the PC monitor.	X

**4.2 Radiated Emission Test**

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The signal of the terrestrial broadcast receiving and displaying the picture on the screen of the PC monitor.	X





## 5. FINAL RESULT OF MEASUREMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

### 5.1 Conducted Emission Test

Humidity Level : 38% Temperature : 25℃  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107(a)  
 Type of Test : CLASS B  
 Result : PASSED BY -14.52 dB at 9.70 MHz

EUT : Digital TV Receiver Card Date: June 11, 2004  
 Operating Condition : Terrestrial broadcast receiving mode on the screen of the monitor.  
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
9.70	H	45.48	60.00	-14.52
11.09	H	43.01	60.00	-16.99
14.30	N	39.88	60.00	-20.12
15.69	N	41.59	60.00	-18.41
17.07	N	40.13	60.00	-19.87
18.47	H	39.02	60.00	-20.98
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
-				
-				

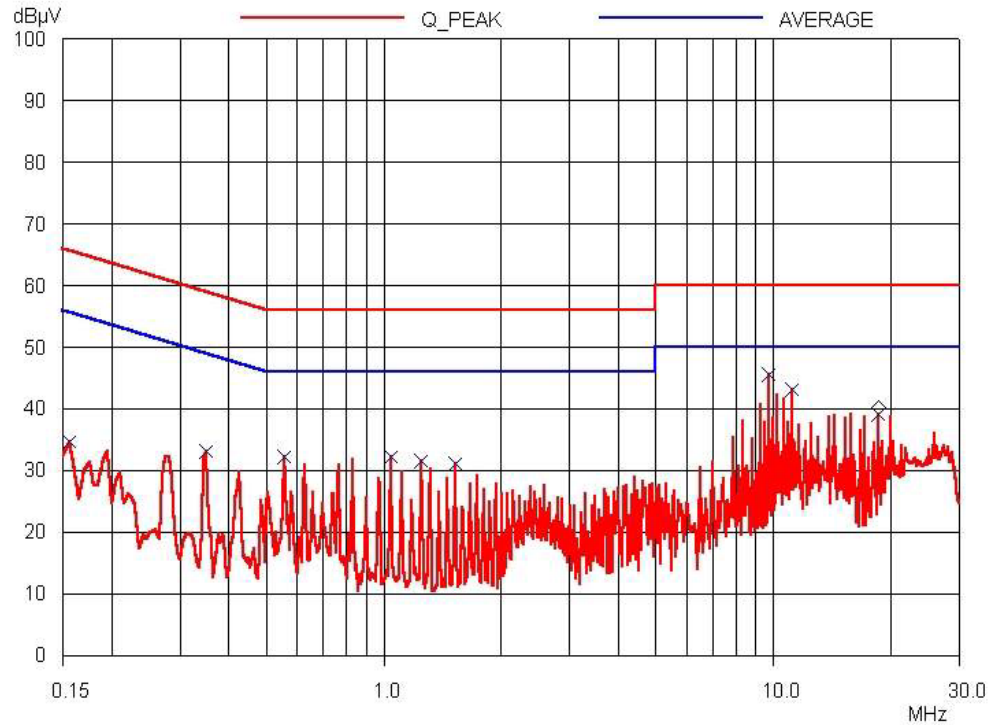
Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral line

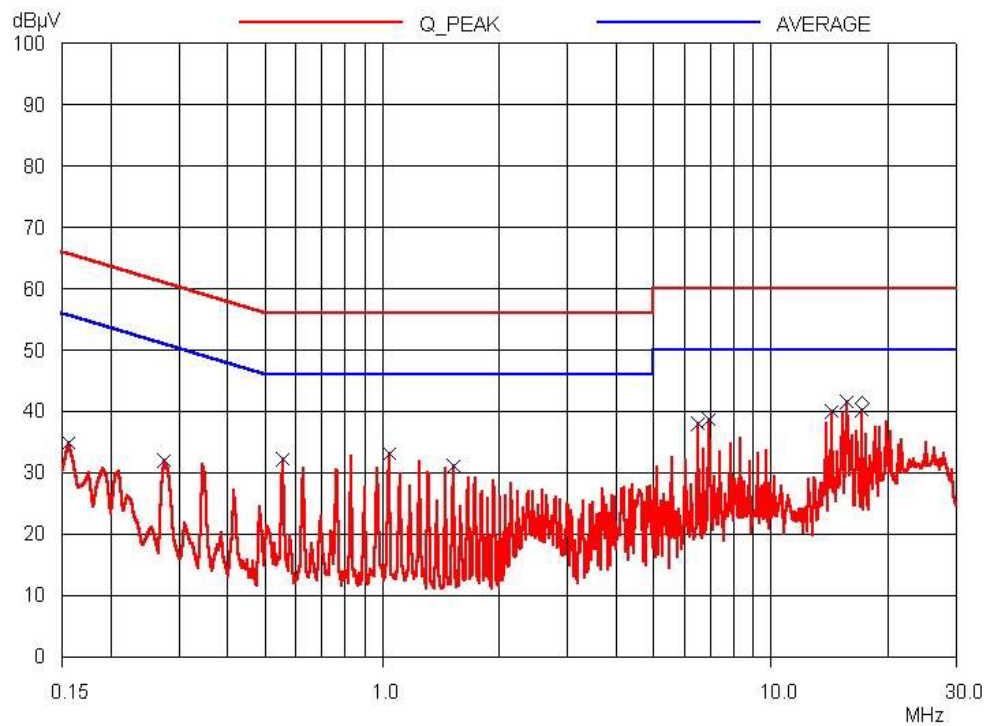
Average data was not measured, because Peak values were under the Average limit.

See next page for an overview sweep performed with peak detector.

Tested by: Dong-Yub, Lee / Test Engineer



**HOT LINE**



**NEUTRAL LINE**



## 5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 40 % Temperature : 22□  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109(a)  
 Type of Test : CLASS B  
 Result : PASSED BY -6.90 dB at 666.65 MHz

EUT : Digital TV Receiver Card Date: May 06, 2004  
 Operating Condition : Terrestrial broadcast receiving mode on the screen of the monitor.  
 Frequency Range : 30 MHz – 1000 MHz  
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)  
 Distance : 3 Meter

Radiated Emission		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.96	10.43	V	16.57	1.00	28.00	40.00	-12.00
61.00	14.29	V	9.43	1.32	25.04	40.00	-14.96
132.71	12.82	H	12.80	2.00	27.62	43.50	-15.88
200.55	17.23	V	11.00	2.41	30.64	43.50	-12.86
250.93	16.21	H	12.11	2.80	31.12	46.00	-14.88
300.36	12.25	H	15.10	2.80	30.15	46.00	-15.85
518.39	11.56	V	17.95	4.39	33.90	46.00	-12.10
533.89	16.24	V	18.07	4.46	38.77	46.00	-7.23
647.27	10.50	V	19.91	5.03	35.44	46.00	-10.56
666.65	13.47	V	20.66	4.97	39.10	46.00	-6.90

Radiated Emission Tabulated Data

Tested by: Dong-Yub, Lee / Test Engineer



## 6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

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= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)



## 7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	DEC/03	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/04	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	JUL/04	12MONTH	
4.	Spectrum analyzer	HP	8568B	3109A05456	JUL/04	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	APR/04	12MONTH	■
6.	Quasi-Peak Adapter	HP	85650A	3107A01542	JUL/04	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	FEB/04	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4443	MAY/04	12MONTH	
		Schwarzbeck	VHA9103	91031852	JAN/04		■
9.	Log Periodic antenna	EMCO	3146	9109-3213	FEB/04	12MONTH	
				9109-3217	MAY/04		
		Schwarzbeck	9108-A(494)	62281001	JAN/04		■
10.	LISN	EMCO	3825/2	9109-1867	JUL/04	12MONTH	■
				9109-1869	OCT/03		■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■