



# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

**Test report file number** : E015R-028

**Applicant** : SOUNDGRAPH, INC.  
**Address** : 501 HIT Bldg., 17 Haengdang-Dong, Sungdong-Ku, Seoul, 133-791, Korea

**Manufacturer** : JEONG MOON INFORMATION CO., LTD.  
**Address** : 122-5 Youngcheon-Ri, Dongtan-Myeon, Hwasung-Gun, Gyeonggi-Do, 445-810, Korea

**Type of Equipment** : USB Touch Pad as PC Accessory

**FCC ID** : PMTSG01DJPAD2020

**Model / Type No.** : DJPAD2020

**Serial number** : N/A

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

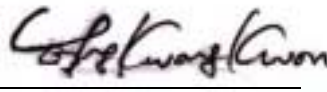
**Date of Incoming** : May 04, 2001


**Date of issuing** : May 15, 2001

## SUMMARY

The equipment complies with the requirements of **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:   
Y. K. Kwon / Chief Engineer  
EMC Dept.  
ONETECH Corp.

Approved by:   
S. S. Hong / Managing Director  
EMC Dept.  
ONETECH Corp.



**CONTENTS**

Page

**1. VERIFICATION OF COMPLIANCE.....3**

**2. GENERAL INFORMATION .....4**

2.1 PRODUCT DESCRIPTION.....4

2.2 RELATED SUBMITTAL(S) / GRANT(S) .....4

2.3 TEST SYSTEM DETAILS .....5

2.4 TEST METHODOLOGY .....5

2.5 TEST FACILITY .....5

**3. SYSTEM TEST CONFIGURATION.....6**

3.1 JUSTIFICATION .....6

3.2 EUT EXERCISE SOFTWARE .....6

3.3 CABLE DESCRIPTION.....6

3.4 NOISE SUPPRESSION PARTS ON CABLE .....7

3.5 EQUIPMENT MODIFICATIONS.....7

3.6 CONFIGURATION OF TEST SYSTEM.....7

**4. PRELIMINARY TEST .....8**

4.1 AC POWER LINE CONDUCTED EMISSION TEST.....8

4.2 RADIATED EMISSION TEST.....8

**5. FINAL RESULT OF MEASUREMENT .....9**

5.1 CONDUCTED EMISSION TEST.....9

5.2 RADIATED EMISSION TEST.....11

**6. FIELD STRENGTH CALCULATION .....12**

**7. LIST OF TEST EQUIPMENT.....13**



## 1. VERIFICATION OF COMPLIANCE

APPLICANT : SOUNDGRAPH, INC.  
 ADDRESS : 501 HIT Bldg., 17 Haengdang-Dong, Sungdong-Ku, Seoul, 133-791, Korea  
 CONTACT PERSON : Mr. Rany Ahn / Sales Manager  
 TELEPHONE NO : +82-2-2298-2375  
 FCC ID : PMTSG01DJPAD2020  
 MODEL NO/NAME : DJPAD2020  
 SERIAL NUMBER : N/A  
 DATE : May 15, 2001

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	USB Touch Pad as PC Accessory
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
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

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 SOUNDGRAPH, INC., Model DJPAD2020 (referred to as the EUT in this report) is a USB Touch Pad as PC accessory which can support all the function of mouse and the EUT make real time scratch and create your own mixing by using two digital audio files (MP3, CD and Wave). The H/W of the EUT is composed of Touch Pad which generates the control information about the speed and direction of the digital audio like the spinning of LP record on the turntable and Volume Slider which controls many volume sliders and even acts as a cross-fader. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	6 MHz on the main board
NUMBER OF LAYERS	All Boards: 2 Layers
ELECTRICAL RATING	DC 5V from USB Port.
EXTERNAL TERMINALS	USB Port

### Model Differences:

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

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

Original submittal only



## 2.3 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
DJPAD2020	SOUNDGRAPH, INC.	MTSG01DJPAD2020N/A	USB Touch Pad (EUT)	PC
TC-PA1000	TAIL MEDIA	LIZ-TCPA1000	PC(HOST)	-
AV-5T	KDS	EVOKD-1510T	MONITOR	PC
5530	BTC	DoC	KEYBOARD	PC
SMS-015N	SUNGIL PRECISION	N/A	SPEAKER	PC
OK-520	A4-TECH	DoC	MOUSE	PC
2225C	HP	DSI6XU2225	PRINTER	PC
020-0470	CARDINAL	GDE0196	MODEM	PC

## 2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

## 2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 12, 1999. (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	SOUNDGRAPH, INC.	DJPAD2020	N/A
TOUCH PAD BOARD	SYNAPTICS, INC.	N/A	N/A

#### 3.2 EUT exercise Software

1.- The windows program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. This program was included into HOST. Once loaded, this program sequentially exercises each system component in turn. The sequence used is: (1) series of H characters are printed on the monitor until the screen is completely full, (2) copy series of H characters to mass storage device (if one is used), (3) print series of H characters to printer. The complete cycle is repeated continuously.

2.- The digital audio control engine for the EUT, DJPAD2020 software was continuously displayed on the monitor.

#### 3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
USB Touch Pad as PC Accessory (EUT)	N/A	Y	1.5(D)
PC	N	-	1.5(P)
MONITOR	N	Y	1.5(P), 1.8(D)
KEYBOARD	N/A	N	1.8(D)
SPEAKER	N/A	N	1.2(D)
MOUSE	N/A	N	1.8(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	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
USB Touch Pad as PC Accessory (EUT)	N	N/A	Y	PC END
PC	-	-	-	-
MONITOR	Y	BOTH END	Y	BOTH END
KEYBOARD	N	N/A	Y	PC END
SPEAKER	N	N/A	Y	PC END
MOUSE	N	N/A	Y	PC END
MODEM	N	N/A	Y	BOTH END
PRINTER	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 connected to 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 C63.4/1992 7.2.3 to determine the worse operating conditions.

**Radiated Emission Test:** Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 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 music program software and “H” characters were continuously displayed on the 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 music program software and “H” characters were continuously displayed on the 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

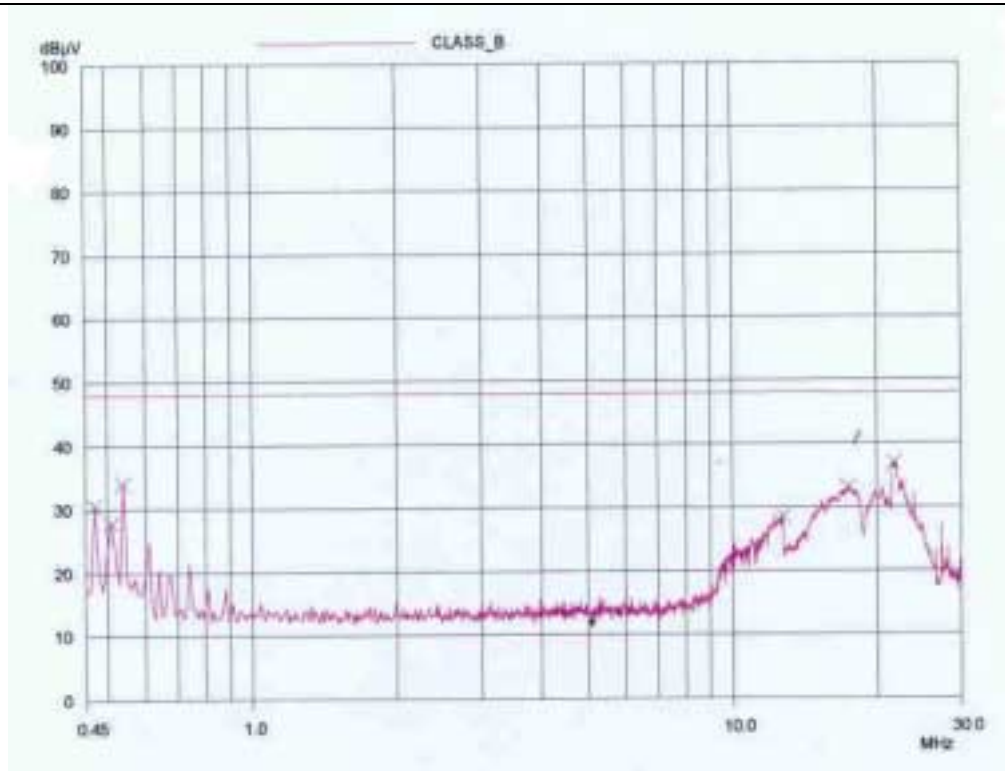
Humidity Level : 50% Temperature : 21.0  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B  
 Type of Test : CLASS B  
 Result : PASSED BY -10.82 dB at 21.55 MHz

EUT : USB Touch Pad as PC Accessory Date: May 4, 2001  
 Operating Condition : The music program software and "H" characters were continuously displayed on the monitor.  
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

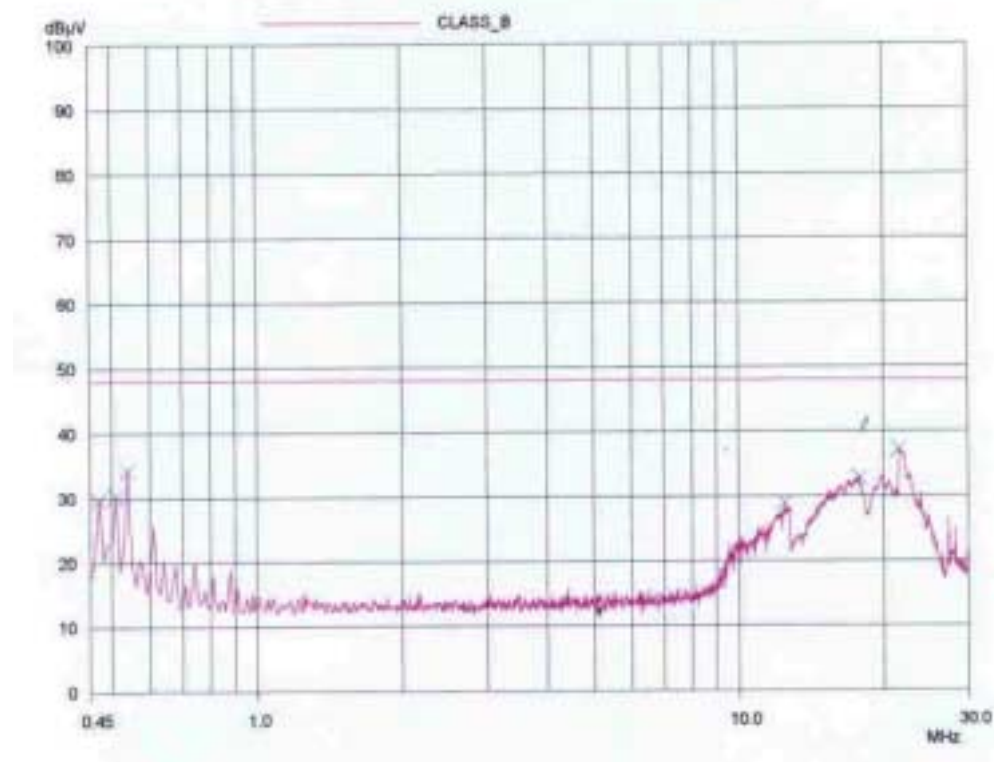
Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
0.47	30.55	HOT	48.00	-17.45
0.51	30.23	NEUTRAL	48.00	-17.77
0.54	34.26	NEUTRAL	48.00	-13.74
12.45	28.93	NEUTRAL	48.00	-19.07
17.49	33.07	HOT	48.00	-14.93
21.55	37.18	NEUTRAL	48.00	-10.82

Line Conducted Emission Tabulated Data

**Tested by: Young Min, Choi / Project Engineer**



HOT LINE



NEUTRAL LINE

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EMC-004 (Rev.0)

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**EMC Testing Dept** : 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Si, Kyunggi-Do 464-860 Korea. (TEL: 82-31-765-8289 FAX: 82-31-766-2904)



## 5.2 Radiated Emission Test

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

Humidity Level : 50 % Temperature : 24.  
 Limits apply to : FCC CFR 47, PART 15, SUBPART B  
 Type of Test : CLASS B  
 Result : PASSED BY -4.06 dB at 384.40 MHz

EUT : USB Touch Pad as PC Accessory Date: May 04, 2001  
 Operating Condition : The music program software and "H" characters were continuously displayed on the monitor.  
 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)
203.90	20.30	H	11.60	1.59	33.49	43.50	-10.01
228.05	18.30	H	12.00	1.72	32.02	46.00	-13.98
239.80	26.30	H	12.20	1.78	40.28	46.00	-5.72
251.80	19.30	H	12.50	1.83	33.63	46.00	-12.37
360.40	17.20	H	15.32	2.33	34.85	46.00	-11.15
372.40	20.30	H	15.48	2.38	38.16	46.00	-7.84
384.40	23.90	H	15.63	2.41	41.94	46.00	-4.06
396.60	21.00	H	15.78	2.42	39.20	46.00	-6.80
407.60	13.30	H	15.99	2.45	31.74	46.00	-14.26
419.60	12.60	H	16.26	2.47	31.33	46.00	-14.67

Radiated Emission Tabulated Data

**Tested by: Young Min, Choi / Project 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	SEP/00	12MONTH	■
2.	Test receiver	R/S	ESHS10	834467/007	APRIL/01	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3026A0226	SEP/00	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	SEP/00	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/00	12MONTH	■
6.	Dipole Antenna	EMCO	3121C	9107-745	JUN/00	12MONTH	
7.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/01	12MONTH	■
8.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	MAR/01	12MONTH	■
9.	Horn Antenna	EMCO	3115	9509-4563	MAR/01	12MONTH	■
10.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUN/00	12MONTH	■
11.	RF Amplifier	HP	8447F	3113A04554	JUN/00	N/A	
12.	Spectrum Analyzer	HP	8591A	3131A02312	APR/01	12MONTH	
13.	Spectrum Analyzer	HP	8561E	3350A00546	SEP/00	12MONTH	■
14.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
15.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
16.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
17.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
18.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■