HYUNDAI CALIBRATION & CERTIFICATION TECH. CO., LTD.

PRODUCT COMPLIANCE TEAM
SAN 136-1, AMI-RI , BUBAL-EUP, ICHEON-SI, KYOUNKI-DO, 467-701, KOREA
TEL : +82 31 639 8518 FAX : +82 31 639 8525 www.hctec.co.kr

CERTIFICATION

Manufacture; **Dyne Telecom Co., Ltd.** **#3 Chungyoung B/D1123-1, Kwanyang-2dong, Dongan-gu, Anyang-city, Kyungki-do, Korea 431-062.** **Dyne Telecom FRN : 0007-9085-51**	**Date of Issue: NOVEMBER 12, 2002** **Test Report No.: HCT-F02-1104** **Test Site: HYUNDAI CALIBRATION & CERTIFICATION TECHNOLOGIES CO., LTD.** **HCT FRN : 0005-8664-21**

FCC ID : **N5ZDN308**

APPLICANT : **Dyne Telecom Co., Ltd.**

FCC Rule Part(s):	**Part 15 & 2; ET Docket 95-19**
Equipment Class:	**Communications Receiver used w/ Pt 15 Tx (CYY)**
Frequency Range:	**1 ch , Digital Voice Recorder 315.16MHz**
Standard(s):	**FCC Class B: 2001**
Equipment(EUT) Type:	**Digital Voice Recorder**
Model(s):	**DN-308**
Port/ Connector(s)	**Ear-phone port , Micro-phone port**

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-1992.(See Test Report if any modifications were made for compliance)

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.

HYUNDAI C-Tech. certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse of 1988,21 U.S.C.853(a).

Ki Soo Kim

Report prepared by : Ki-Soo Kim
Manager of EMC Tech. Part

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1. GENERAL INFORMATION

1.1 Product Description

The Dyne Telecom Co., Ltd. Model DN-308 (referred to as the EUT in this report) is a Digital Voice Recorder.
Product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	**PLASTIC**
IF Bandwidth	**400KHz**
NUMBER OF LAYERS	**MAIN BOARD 4 LAYER**
ANTENNA	**T-LOOP Antenna On PCB**
Dimension	**101mm X 3441mm X 15mm**
Weight	**43g (without Battery)**
RECEIVERING FREQUENCY	**315.16MHz**
OPERATING TEMPERATURE	**-10□ ~ +50□**
Crystal Frequency	**4MHz ,7.99MHz, 32.768MHz, 36.80MHz**
Battery Life	**Approx. 9 hours(Play Mode) , 11 hours(Rec. Mode)**
Power Voltage	**DC 3V**

1.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

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1.3 Tested System Details

The Model names for all equipment, plus descriptions used in the tested system (including inserted cards) are:

DEVICE TYPE	MANUFACTURER	MODEL NUMBER	FCC ID / DoC	CONNECTED TO
Digital Voice Recorder (EUT)	Dyne Telecom Co., Ltd	DN-308	N5ZDN308	N/A

1.4 Test Methodology

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

1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1,MAEKOK-RI,HOBUP-MYUN,ICHON-SI,KYOUNGKI-DO, 467-701,KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 24,2000(Confirmation Number: EA90661)

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2.SYSTEM TEST CONFIGURATION

2.1 Justification

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the following components inside the E.U.T were used.

DEVICE TYPE	MANUFACTURE	MODEL/PART NUMBER
MAIN BOARD	Dyne Telecom Co., Ltd	DN308-332-0719

2.2 EUT exercise Software

N/A

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2.3 Cable Description

DEVICE TYPE	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
Digital Voice Recorder (EUT)	N/A	N	1.2(D)

The marked "(D)" means the Data Cable and "(P)" means the Power Cable.

2.4 Noise Suppression Parts on Cable. (I/O CABLE)

DEVICE TYPE	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Digital Voice Recorder (EUT)	N	N/A	N	N/A

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2.5 Equipment Modifications

N/A

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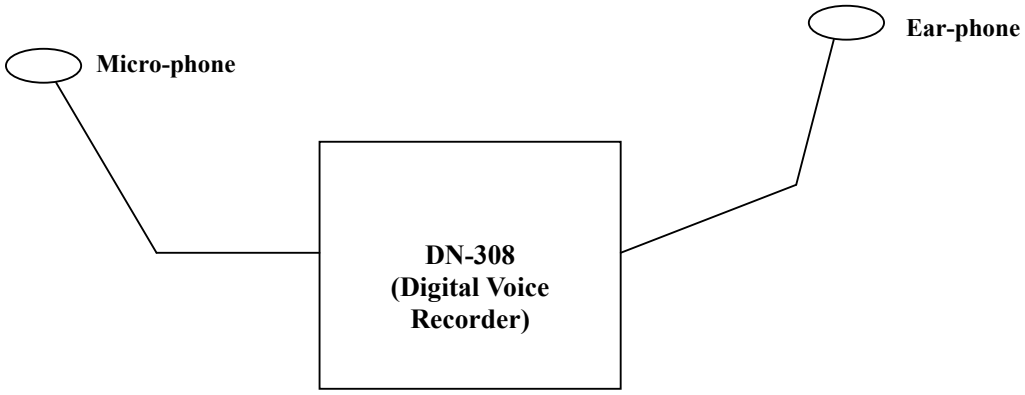
2.6 Configuration of Test system

Line Conducted Test : EUT was connected to LISN, all other supporting equipment were connected to another LISN.
Preliminary Power line Conducted Emission tests were performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary Radiated Emissions tests were conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating condition. Final Radiated Emission tests were conducted at 3 meter open area test site.

[Configuration of Tested System]



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3. FINAL RADIATED EMISSION TESTS SUMMARY

3.1 Radiated Emissions

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

Humidity Level : 19% Temperature : 10 □
Limit apply to : FCC CFR 47, PART 15, SUBPART B
Type of Tests : CLASS B
Date : NOVEMBER 6, 2002
Result : PASSED BY –4.6dB

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EUT : Digital Voice Recorder / DN-308
Detector : CISPR Quasi-Peak (6 dB Bandwidth : 120 KHz)

Frequency MHz	Reading dBuV	Ant. Factor dB	Cable Loss dB	ANT POL (H/V)	Total dBuV/m	Limit dBuV/m	Margin dB
95.1	23.98	9.42	2.00	V	35.4	40.0	-4.6
125.6	16.48	13.72	2.40	H	32.6	43.5	-10.9
147.8	18.12	14.68	2.50	H	35.3	43.5	-8.2
167.2	18.01	14.89	2.70	V	35.6	43.5	-7.9
208.8	17.66	16.04	3.00	H	36.7	43.5	-6.8
267.0	16.42	17.78	3.60	H	37.8	46.0	-8.2
300.2	19.09	15.61	3.80	H	38.5	46.0	-7.5
509.5	13.07	18.73	4.90	H	36.7	46.0	-9.3
563.2	13.39	19.81	5.30	H	38.5	46.0	-7.5
603.7	10.84	20.76	5.80	H	37.4	46.0	-8.6
964.0	10.77	25.33	7.40	V	43.5	54.0	-10.5

NOTES:
The frequency range investigated during radiated emission test was from 30MHz to 1GHz.

Kyoung Hee YOON

Measured by Kyoung-Hee YOON / Engineer **Date : NOVEMBER 6, 2002**

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4. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor.
The basic equation with a sample calculation is as follows:

FS = RA + AF + CF

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dBuV is obtained. The Antenna Factor of 7.4 and a Cable Factor of 1.1 is added. The 30 dBuV/m value was mathematically converted to its corresponding level in uV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBuV/m

Level in uV/m = Common Antilogarithm [(30 dBuV/m)/20] = 31.6 uV/m

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5. LIST OF TEST EQUIPMENT

TYPE	MANUFACTURE	MODEL	CAL.DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESI40	2002.11.5
EMI Test Receiver	Rohde & Schwarz	ESVS30	2003.3.6
Graphic Plotter	HP	7440+	N.A
Printer	Rohde & Schwarz	PDN	N.A
Spectrum Analyzer	H.P	8591EM	2002.7.11
LISN	EMCO	3825/2	2003.2.7
LISN	Rohde & Schwarz	ESH2-Z5	2002.8.12
Amplifier	Hewlett-Packard	8447E	2003.3.2
Dipole Antennas	Rohde & Schwarz	VHAP	2002.6.28
Dipole Antennas	Rohde & Schwarz	UHAP	2002.6.28
Biconical Antenna	Rohde & Schwarz	BBA-9106	2002.6.28
Log-Periodic Antenna	Rohde & Schwarz	UHALP-9107	2002.6.26
Broadband Horn Antenna	Rohde & Schwarz	BBHA 9120 D(1099)	2002.10.26
Antenna Position Tower	EMCO	1051-12	N.A
Turn Table	EMCO	1060-06	N.A
Line Filter	KEENE	ULW 2X30-60	N.A

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