

III. RADIATED EMISSION MEASUREMENT (Section 15.109)**1. Test Procedure****1.1 Preliminary Testing for Reference**

This pager receiver(EUT) is designed to operate in the band 929.0125MHz to 931.9875MHz by changing a local oscillator installed in internal PCB. According to section 15.31(m), the measurements were performed with three equipments which were selected as bottom, middle, and top frequency in the operating band.

Preliminary testing was performed in a KAITECH absorber-lined room to determine the emission characteristics of the EUT. The EUT was placed on the wooden table which has dimensions of 0.8 meters in height, 1 meter in length and 1.5 meters in width. Receiving antenna(Biconical antenna : 30 to 300MHz, Log-periodic antenna : 200 to 1000MHz or Horn Antenna : 1 to 18GHz) was placed at the distance of 1 meter from the EUT.

An attempt was made to maximize the emission level with the various configurations of the EUT while rotating the table and varying antenna height.

Emissions level from the EUT with various configurations were examined on a Spectrum Analyzer connected with a RF amplifier and graphed by a plotter.

1.2 Final Radiated Emission Test at a Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KAITECH Absorber-Lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

Based on the test results in preliminary test, measurement was made in same test set up and configuration which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an EMI receiver or spectrum analyzer(for above 1GHz) with a RF amplifier.

Turntable was rotated through 360 degrees and receiving antenna height was varied from 1 to 4 meters above the ground plane to read maximum emission level.

If necessary, the radiated emission measurements could be performed at a closer distance than specified distance to ensure higher accuracy and their results were extrapolated to the specified distance using an inverse linear distance extrapolation factor(20dB/decade) as per Section 15.31(f).

The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

4. Measurement Data

4.1 Operating Frequency (Bottom : 929.0125MHz Tuning)

- Resolution Bandwidth : x CISPR Quasi-Peak (6dB Bandwidth : 120kHz)
____ Peak (3dB Bandwidth : 300kHz)
- Measurement Distance : 3 Meter

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB μ N)	* A.F. + C.L (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level		Limit (μ N/m)	** Margin (dB)
							(dB μ N/m)	(μ N/m)		
*** 75.64	Q	V	2.0	7.9	-	-	9.9	3.1	100	-30.1
302.54	Q	H	3.2	21.3	-	-	24.5	16.8	200	-21.5
907.62	Q	V	7.9	35.0	-	-	42.9	139.6	200	-3.1
-	-	-	-	-	-	-	-	-	-	-

Note

The observed EMI receiver(ESVS30) noise floor level was 2.0dB μ N. And all other emissions not reported on data were more than 25dB below the permitted level.

* D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor

** Margin (dB) = Emission Level (dB) - Limit (dB)

*** Reference Data.

4.2 Operating Frequency (Bottom : 929.7625MHz Tuning)

- Resolution Bandwidth : x CISPR Quasi-Peak (6dB Bandwidth : 120kHz)
 Peak (3dB Bandwidth : 300kHz)
- Measurement Distance : 3 Meter

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB μ N)	* A.F. + C.L (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level		Limit (μ N/m)	** Margin (dB)
							(dB μ N/m)	(μ N/m)		
*** 75.70	Q	V	2.0	7.9	-	-	9.9	3.1	100	-30.1
302.79	Q	H	2.6	21.3	-	-	23.9	15.7	200	-22.1
908.37	Q	V	3.1	35.0	-	-	38.1	80.4	200	-7.9
-	-	-	-	-	-	-	-	-	-	-

Note

The observed EMI receiver(ESVS30) noise floor level was 2.0dB μ N. And all other emissions not reported on data were more than 25dB below the permitted level.

* D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor

** Margin (dB) = Emission Level (dB) - Limit (dB)

*** Reference Data.

4.3 Operating Frequency (Bottom : 931.9875MHz Tuning)

- Resolution Bandwidth : x CISPR Quasi-Peak (6dB Bandwidth : 120kHz)
Peak (3dB Bandwidth : 300kHz)
- Measurement Distance : 3 Meter

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB μ N)	* A.F. + C.L (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level		Limit (μ N/m)	** Margin (dB)
							(dB μ N/m)	(μ N/m)		
*** 75.88	Q	V	2.5	7.9	-	-	10.4	3.3	100	-29.6
303.53	Q	H	4.2	21.3	-	-	25.5	18.8	200	-20.5
910.59	Q	V	3.6	35.0	-	-	38.6	85.1	200	-7.4
-	-	-	-	-	-	-	-	-	-	-

Note

The observed EMI receiver(ESVS30) noise floor level was 2.0dB μ N. And all other emissions not reported on data were more than 25dB below the permitted level.

* D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor

** Margin (dB) = Emission Level (dB) - Limit (dB)

*** Reference Data.

IV. TEST EQUIPMENT USED FOR MEASUREMENTS

<u>Equipment</u>	<u>Model No.</u>	<u>Manufacturer</u>	<u>Serial No.</u>	<u>Effective Cal. Duration</u>
[x] EMI Receiver (20MHz-1GHz)	ESVS30	R & S	830516/002	06/29/98-06/29/99
[x] Spectrum Analyzer (9kHz-26.5GHz)	8563A	H. P.	3222A02069	01/30/98-01/30/99
[] Spectrum Analyzer (100Hz-22GHz)	8566B	H. P.	3014A07057	05/29/98-05/29/99
[] Quasi-Peak Adapter (10kHz-1GHz)	85650A	H. P.	3107A01511	05/29/98-05/29/99
[] RF-Preselector (20Hz-2GHz)	85685A	H. P.	3010A01181	05/29/98-05/29/99
[] Test Receiver (9kHz-30MHz)	ESH3	R & S	860905/001	06/29/98-06/29/99
[x] Pre-Amplifier (0.1-3000MHz, 30dB)	8347A	H. P.	2834A00543	05/29/98-05/29/99
[x] Pre-Amplifier (1-26.5GHz, 35dB)	8449B	H. P.	3008A00302	06/29/98-06/29/99
[] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9010-1710	-
[] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9011-1720	-
[x] Plotter	7470A	H. P.	3104A21292	-
[x] Tuned Dipole Ant. (30MHz-300MHz)	VHA 9103	Schwarzbeck	-	*
[x] Tuned Dipole Ant. (300MHz-1GHz)	UHA 9105	Schwarzbeck	-	*
[] Biconical Ant. (30MHz-300MHz)	BBA 9106	Schwarzbeck	-	*
[] Log Periodic Ant. (200MHz-1GHz)	3146	EMCO	-	*
[x] Horn Ant. (1GHz-18GHz)	3115	EMCO	-	*
[] DC Power Supply	6260B	H.P.	1145A04822	-
[] Shielded Room	(5.0m x 4.5m)	SIN-MYUNG	-	-

* Each set of antennas has been calibrated to ensure correlation with ANSI C63.5 standard.
The calibration of antennas is traceable to Korea Standard Research Institute(KSRI).

Deltacom Co., Ltd.

48-4 Winmi-Dong, Winmi-Ku, Puchon-City, Kyoungki-Do, Korea 421-110

Tel : (032) 668-0020 Fax : (032) 668-6079

Date : September 15, 1998

Statement for Section 2.975(a),(6) of the Rules

- Equipment : Pager Receiver
- FCC ID. : NQ5DP904

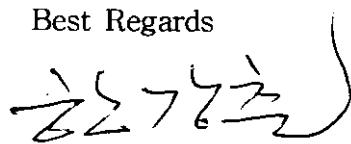
Concerning the FCC Part 15, section 2.975(a)(6), we, Deltacom Co., Ltd. hereby confirm above referenced device as follows.

This equipment has been tested in accordance with the requirements contained in the appropriate Commission regulations. To the best of my knowledge, these tests were performed using measurement procedures consistent with industry or Commission standards and demonstrate that the equipment complies with the appropriate standards.

Each unit manufactured, imported or marketed, as defined in the Commission's regulations will conform to the sample(s) tested within the variations that can be expected due to quantity production and testing on a statistical basis.

I further certify that the necessary measurements were made by Korea Academy of Industrial Technology (KAITECH, 222-12 Guro-Dong, Guro-Gu, Seoul, Korea 152-053).

Best Regards



Kang-Chun Hahn, President
Deltacom Co., Ltd.

Deltacom Co., Ltd.

48-4 Winmi-Dong, Winmi-Ku, Puchon-City, Kyoungki-Do, Korea 421-110

Tel : (032) 668-0020 Fax : (032) 668-6079

Date : September 15, 1998

Statement for Section 15.37 of the Rules

- Equipment : Pager Receiver
- FCC ID. : NQ5DP904

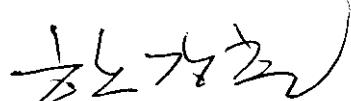
Concerning the FCC Part 15, section 15.37 transition provision, we, Deltacom Co., Ltd. hereby confirm above referenced device as follows.

This device(Pager Receiver) subject to the regulations in FCC Part 15 that are manufactured on or after June 23, 1999 complies with new rules adopted under Docket 87-389.

This Device is not associated with a transmitter that could not have been authorized under regulations in effect prior to June 23, 1989. e.g., a transmitter operating under the provisions of section 15.209 or section 15.249 (below 960MHz).

This device is not scanning receivers or frequency converters designed or marketed for use with scanning receivers.

Best Regards



Kang-Chun Hahn, President
Deltacom Co., Ltd.