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APPLICANT: DELTACOM CO., LTD.

FCC ID: NQ5DF-101

TEST REPORT:

EXHIBITS CONTAINING:

GENERAL INFORMATION REQUIRED
FOR TYPE ACCEPTANCE

2.983 (a,b,c) DELTACOM CO., LTD. will manufacture the FCCID: NQ5DF-101 FAMILY RADIO SERVICES 14 CHANNEL TRANSCEIVER in quantity, for use under FCC RULES PART 95.

2.983 (d) TECHNICAL DESCRIPTION

2.983 (d) (1) Type of Emission: 9K6F3E
95.629

Bn = 2M + 2DK
M = 3000
D = 2.2K
Bn = 2(3.0)+2(1.8) = 9.60K

Authorized Bandwidth 12.5KHz

2.983 (d) (2) Frequency Range: 1. 462.5625 8. 467.5625
95.627 2. 462.5875 9. 467.5875
3. 462.6125 10. 467.6125
4. 462.6375 11. 467.6375
5. 462.6625 12. 467.6625
6. 462.6875 13. 467.6875
7. 462.7125 14. 467.7125 MHz

2.983 (d) (3) Power Output shall not exceed 0.500Watts effective
95.637 radiated power. There can be no provisions for
95.647 increasing the power.

2.983 (d) (4) Maximum Output Power Rating: 400 milliWatts
95.637 effective radiated power.

95.645 The antenna is an integral part to the unit, it cannot be removed without rendering the unit inoperative. In order to remove the antenna the case must unscrewed, then the PCB assemblies must be removed then the antenna can be removed.

2.983 (d) (5) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY
Vce = 4.5 Volts DC Ice = 0.31A.
Pin = 1.42 Watts

2.983(d) (6) Function of each electron tube or semiconductor device or other active circuit device:

2.983(d) (7) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 7A-7B of this report. The block diagrams are included as EXHIBIT 5 of this report.

2.983(d) (8) Instruction book. A draft copy of the instruction manual is included as EXHIBIT 8A-8J.

2.983 (d) (9) Tune-up procedure. The tune-up procedure is included INCLUDED IN USER'S MANUAL.

(10) Description of all circuitry and devices provided for determining and stabilizing frequency is given in EXHIBIT 8A-8J. The crystal specifications are included as PAGES NA.

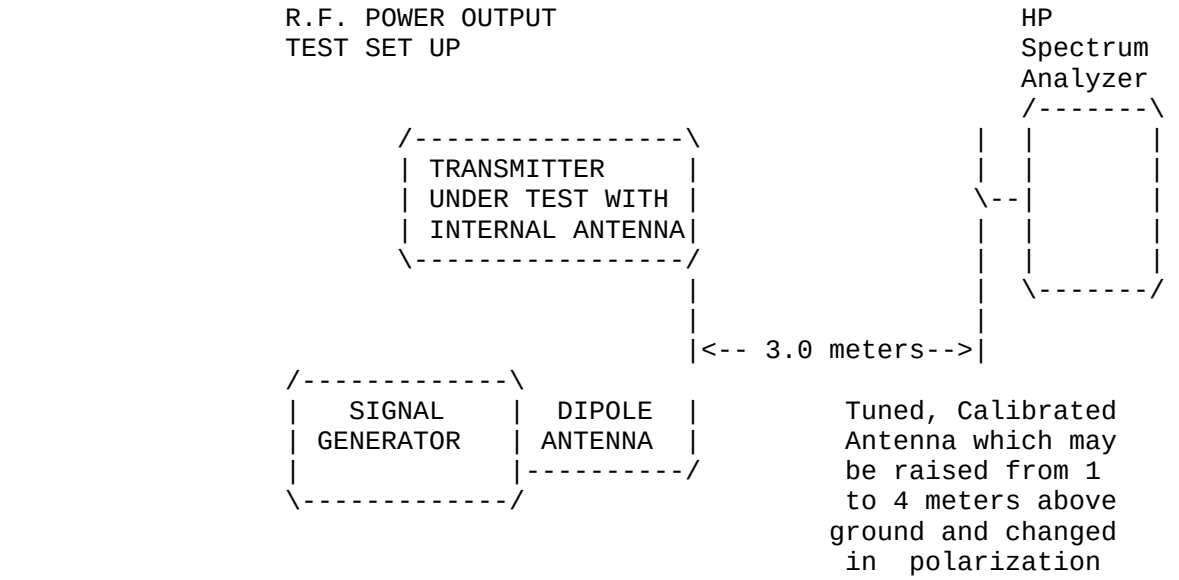
2.983 (d)(11) Description of any circuits or devices employed for suppression of spurious radiation, for limiting modulation, and for limiting power will be 9.

(12) Digital modulation. This unit does not use digital modulation.

2.983(e) The data required by 2.985 through 2.997 is submitted below.

2.985(a) RF power output.

95.637 RF power is measured by measuring the radiated power at 3 meters and then replacing the transmitter with a signal generator to determine the effective radiated power. The ERP shall not exceed 0.500 Watts.
MEASURED POWER OUTPUT = 400 milliWatts ERP



Equipment placed 1 meter above ground
on a rotatable platform.

2.987(a)(b) Modulation characteristics:

AUDIO FREQUENCY RESPONSE

The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on the next page. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured. See Exhibit # 10.

2.987(b) 1 Audio input versus modulation

The audio input level needed for a particular per-percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are on the following pages. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz. See Exhibit # 11A-11C.

95.635(b) Post Limiter Filter The filter must be between the modulation limiter and the modulated stage. At any frequency between 3 & 20KHz the filter must have an attenuation of 60log (f/3) greater than the attenuation at 1KHz. See Exhibit #: 12.

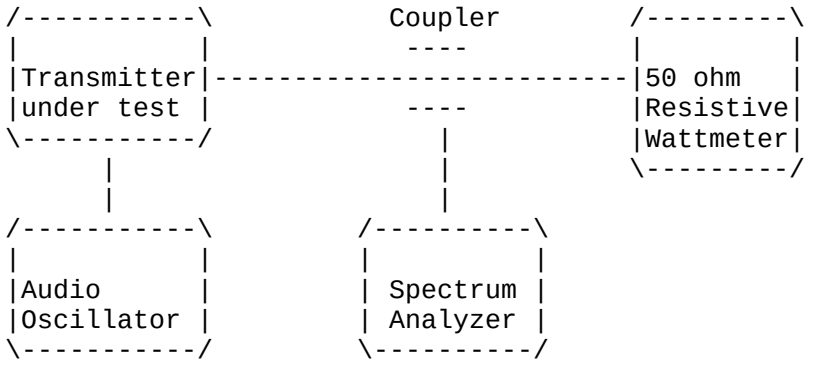
2.989(c) EMISSION BANDWIDTH:
95.633(b)(1)(3)(7)

Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25dB and from 100 to 250% the sidebands must be attenuated by at least 35dB. Beyond 250% the sidebands must be attenuated by at least 43+log10(TP). The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth PLOTS follow.

Radiotelephone transmitter with modulation limiter.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



2.991 Not Applicable, no antenna terminal allowed.

2.993(a)(b) UNWANTED RADIATION:
95.635(b)(7)

REQUIREMENTS: Emissions must be attenuated by at least the following below the output of the transmitter.

43 + 10log(TP) = 43 + 10log(0.5) = 40.00dB

TEST DATA:

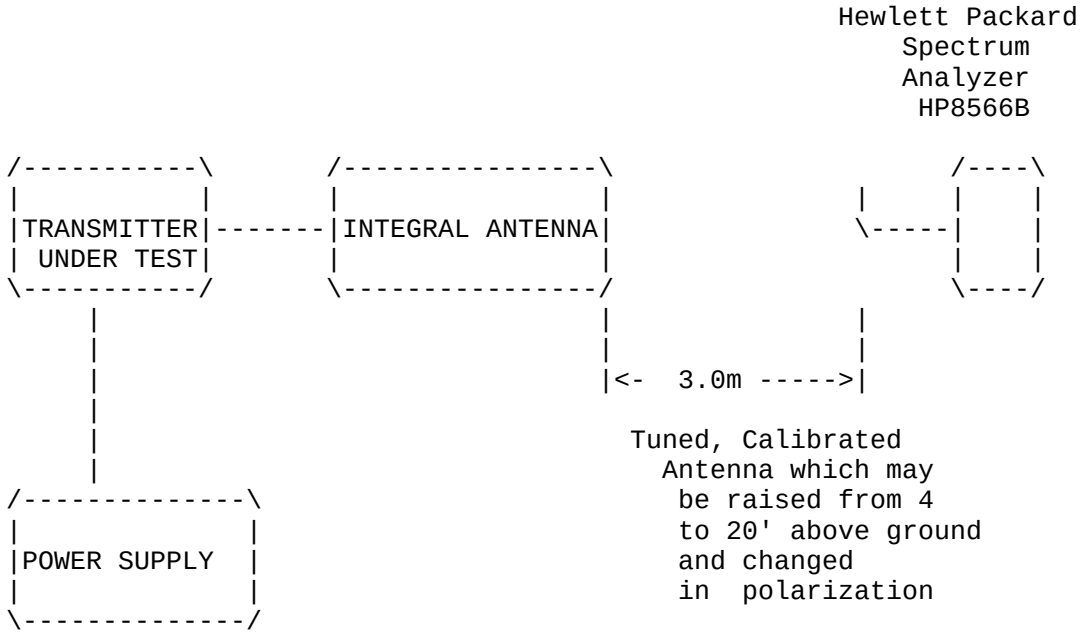
EMISSION FREQ. MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRNGTH dBuV/m	ATT. dBuV/m	MARGIN dB	ANT.
467.70	103.20	1.60	18.56	123.36	0.00	0.00	V
935.40	43.30	2.90	24.18	70.38	52.97	12.97	V
1403.10	37.40	1.00	25.61	64.01	59.34	19.34	V
1870.80	40.40	1.01	27.48	68.89	54.46	14.46	V
2338.60	42.50	1.08	28.85	72.43	50.93	10.93	V
2806.30	42.90	1.15	30.02	74.07	49.29	9.29	V
3274.00	46.50	1.22	31.18	78.91	44.45	4.45	H
3741.70	42.40	1.29	32.35	76.05	47.31	7.31	H
4209.40	32.90	1.36	33.24	67.50	55.86	15.86	H
4677.20	23.00	1.43	33.76	58.19	65.16	25.16	H

MARGIN = (Field strength of Fund - FS OF EMISSION)- 40dB

METHOD OF MEASUREMENT: The procedure used was C63.4-1992 for intentional radiators. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer, an Eaton model 94455-1 Biconnical Antenna, ElectroMetrics antennas models TDA, TDS-25-1, TDS-25-2 and RGA-180. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

2.993(a)(b) UNWANTED RADIATION:
95.631(b)(8)(9)

Method of Measuring Radiated Spurious Emissions



Equipment placed 4' above ground
on a rotatable platform.

2.995(a)(b)(d) Frequency stability:

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00025%, 2.5 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at plus and minus 15% of the battery voltage of 4.5 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 462.562 990

TEMPERATURE oC	FREQUENCY MHz	PPM
REFERENCE	462.562 990	00.00
-20	462.562 750	-1.36
-10	462.563 310	-0.32
0	462.563 610	+1.08
+10	462.563 510	+0.64
+20	462.563 350	+0.11
+30	462.562 950	+1.67
+40	462.562 450	+1.73
+50	462.562 440	+1.08

20c BATT. End-Point 4.5V/dc 462.562 030 +1.01

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was-2.16 to +1.64 ppm. The maximum frequency variation with voltage was +0.28ppm.

2.983(f) Photo or Drawing of Label:
See EXHIBIT 2.

2.983(g) Photos of Equipment:
See EXHIBIT 4A-4G.

2.999 Measurement Procedures for Type Acceptance:

Measurement techniques have been in accordance with EIA specifications and the FCC requirements.

2.909 Certification of Technical Data by Engineers

We, the undersigned, certify that the enclosed measurements and enclosed data are true and correct.

S.S. Sanders
Engineer

LIST OF TEST EQUIPMENT

1. Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/ preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter HP 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 10/17/99
2. Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
3. Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
4. Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Cal. 6/23/97
5. Biconnical Antenna: Eaton Model 94455-1, S/N 1057
6. Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
7. Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Cal. 11/24/99
8. Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 4/27/99
9. Horn 40-60GHz: ATM Part #19-443-6R
10. Line Impedance Stabilization Network: Electro-Metrics Model FCC-25/2, S/N 2512 Cal. 11/18/99
11. Line Impedance Stabilization Network: Electro-Metrics Model ANS-25/2, S/N 2604 Cal. 11/30/99
12. Line Impedance Stabilization Network: Electro-Metrics Model EM-7820, S/N 2682 Cal. 12/1/99
13. Line Impedance Stabilization Network: Electro-Metrics Model EM-7821, S/N 101 Cal. 12/1/99
14. Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
15. AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
16. Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
17. Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
18. Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99
19. Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99