APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION

CLASSIFICATION	DATE	FORM APPROVED OMB No. 0704-0188 Page 1 of Pages

DOD GENERAL INFORMATION

TO	FROM

1. APPLICATION TITLE

2. SYSTEM NOMENCLATURE

3. STAGE OF ALLOCATION *(X one)* ☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☐ c. STAGE 3 DEVELOPMENTAL ☐ d. STAGE 4 OPERATIONAL

4. FREQUENCY REQUIREMENTS
   a. FREQUENCY(IES)
   b. EMISSION DESIGNATOR(S)

5. TARGET STARTING DATE FOR SUBSEQUENT STAGES

a. STAGE 2	b. STAGE 3	c. STAGE 4

6. EXTENT OF USE

7. GEOGRAPHICAL AREA FOR
   a. STAGE 2
   b. STAGE 3
   c. STAGE 4

8. NUMBER OF UNITS

a. STAGE 2	b. STAGE 3	c. STAGE 4

9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT

10 OTHER J/F 12 APPLICATION NUMBER(S) TO BE	11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11?
☐ a. SUPERSEDED J/F 12/ ☐ b. RELATED J/F 12/	☐ a. YES X b. NO ☐ c. NAvail

12. NAMES AND TELEPHONE NUMBERS

a. PROGRAM MANAGER	(1) COMMERCIAL	(2) AUTOVON
b. PROJECT ENGINEER	(1) COMMERCIAL	(2) AUTOVON

13. REMARKS

DOWNGRADING INSTRUCTIONS	CLASSIFICATION	

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TRANSMITTER EQUIPMENT CHARACTERISTICS

1. NOMENCLATURE, MANUFACTURER'S MODEL NO. MHX-2420-FT (FAST MODE)	**2. MANUFACTURER'S NAME** **Microhard Systems Inc.**
3. TRANSMITTER INSTALLATION	**4. TRANSMITTER TYPE** FM
5. TUNING RANGE 2.4016-2477.6 GHz	**6. METHOD OF TUNING** Synthesis PLL
7. RF CHANNELING CAPABILITY 2401.6 to 2477.6 MHz in 280kHz increments @ 230.4kbps	**8. EMISSION DESIGNATOR(S)** **280KF1D @ 230.4 kbps**
9. FREQUENCY TOLERANCE < 3 PPM	
10. FILTER EMPLOYED *(X one)* **X a. YES** ☐ **b. NO**	
11. SPREAD SPECTRUM *(X one)* **X a. YES** ☐ **b. NO**	**12. EMISSION BANDWIDTH** *(X and complete as applicable)* ☐ **CALCULATED** **X MEASURED**
13. MAXIMUM BIT RATE 230.4 kbps	**a. -3 dB** 176 KHz **b. -20** 269 KHz
14. MODULATION TECHNIQUES AND CODING **Continuous Phase FSK**	**c. -40 dB** 550 KHz **d. -60 dB** 8.83 MHz **e. OC-BW**
	15. MAXIMUM MODULATION FREQUENCY 115.2 kHz
16. PRE-EMPHASIS *(X one)* ☐ **a. YES** **X b. NO**	**17. DEVIATION RATIO** **1**
	18. PULSE CHARACTERISTICS **N/A (frequency modulated)**
19. POWER	**a. RATE**
a. MEAN up to 1W	**b. WIDTH**
b. PEP up to 1W	**c. RISE TIME**
20. OUTPUT DEVICE Advanced Gallium Arsenide HBT	**d. FALL TIME** **e. COMP RATIO**
	21. HARMONIC LEVEL
22. SPURIOUS LEVEL **-60 dBc**	**a. 2nd** **< -35 dBm**
23. FCC TYPE ACCEPTANCE NO.	**b. 3rd** **< -45 dBm**
Part 15.247 NS907P22	**c. OTHER** **< - 45 dBm**

24. REMARKS

Microhard Systems Inc.,
#17 2135-32nd Avenue NE
Calgary, AB, T2E 6Z3, Canada
Phone: (403) 248-0028
Fax: (403) 248-2762
Attn: Hany Shenouda

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RECEIVER EQUIPMENT CHARACTERISTICS

1. NOMENCLATURE, MANUFACTURER'S MODEL NO. MHX-2420-FT (FAST MODE)	2. MANUFACTURER'S NAME Microhard Systems Inc.
3. RECEIVER INSTALLATION	4. RECEIVER TYPE FM
5. TUNING RANGE 2401.6 to 2477.6 MHz in 280kHz increments @ 230.4 kbps	6. METHOD OF TUNING Synthesis PLL
7. RF CHANNELING CAPABILITY 2401.6 to 2477.6 MHz in 280kHz increments @ 230.4kbps	8. EMISSION DESIGNATOR(S) FM Modulated
9. FREQUENCY TOLERANCE < 3 PPM	Receiver

10. IF SELECTIVITY	1st	2nd	3rd
a. -3 dB	400 KHz	400 KHz	N/A
b. -20 dB	622 KHz	740 KHz	N/A
c. -60 dB	<1.26 MHz	1.6 MHz	N/A

11. RF SELECTIVITY (X and complete as applicable)	
☐ CALCULATED	X MEASURED
a. -3 dB	120 MHz
b. -20 dB	250 MHz
c. -60 dB	N/A
d. Preselection Type	CERAMIC

12. IF FREQUENCY		13. MAXIMUM POST DETECTION FREQUENCY	120 kHz
a. 1st	243.95 MHz	14. MINIMUM POST DETECTION FREQUENCY	
b. 2nd	10.7 MHz		
c. 3rd	N/A	16. MAXIMUM BIT RATE	230.4Kbps

15. OSCILLATOR TUNED	1st	2nd	3rd
a. ABOVE TUNED FREQUENCY	X	X	
b. BELOW TUNED FREQUENCY			
c. EITHER ABOVE OR BELOW THE FREQUENCY			

17. SENSITIVITY	
a. SENSITIVITY	-108 dBm
b. CRITERIA	115.2 kbps @ 10^{-4} BER or better
c. NOISE FIG	< 4 dB
d. NOISE TEMP	Kelvin

18. DE-EMPHASIS *(X one)*	19. IMAGE REJECTION	20. SPURIOUS REJECTION
☐ a. YES X b. NO	-50dBc	-50 dBc

21. REMARKS

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ANTENNA EQUIPMENT CHARACTERISTICS

1.
☐ a. TRANSMITTING ☐ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING

2. NOMENCLATURE, MANUFACTURER'S MODEL NO.	3. MANUFACTURER'S NAME
4. FREQUENCY RANGE	5. TYPE
6. POLARIZATION	7. SCAN CHARACTERISTICS
	a. TYPE
8. GAIN	b. VERTICAL SCAN
a. MAIN BEAM	(1) Max Elev
b. 1st MAJOR SIDE LOBE	(2) Min Elev
	(3) Scan Rate
9. BEAMWIDTH	c. HORIZONTAL SCAN
a. HORIZONTAL	(1) Sector Scanned
b. VERTICAL	(2) Scan Rate
	d. SECTOR BLANKING *(X one)* ☐ (1) YES ☐ (2) NO

10. REMARKS

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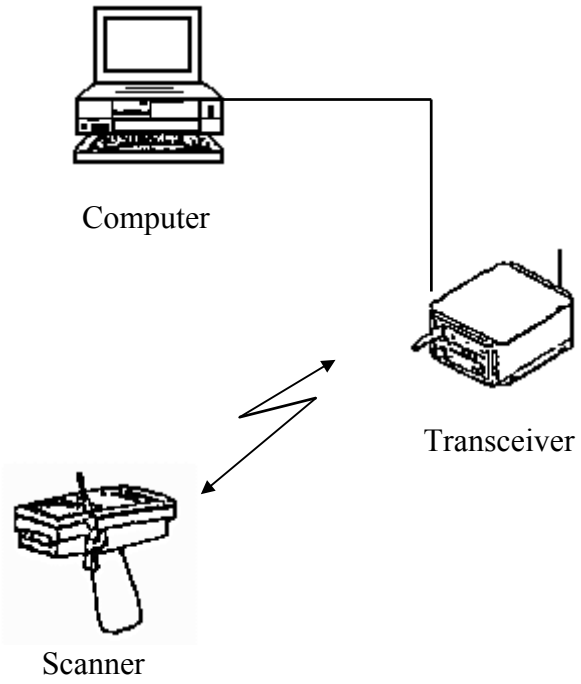
SAMPLE LINE DIAGRAM



This entire system is configured to operate within warehouse buildings. Some internal antennae may be necessary to allow uninterrupted communication between the bar code scanners and the base station within the building. The base station transceiver will be networked to directly to the server. Data will be transferred via RF between bar code scanners and the base station. The server will also be networked to other Family Housing terminals.

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION: UNCLASSIFIED	PAGE of Pages

NTIA GENERAL INFORMATION

1. APPLICATION TITLE

2. SYSTEM NOMENCLATURE

3. STAGE OF ALLOCATION *(X one)*

☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☐ c. STAGE 3 DEVELOPMENTAL ☐ d. STAGE 4 OPERATIONAL

4. FREQUENCY REQUIREMENTS

a. FREQUENCY(IES)

b. EMISSION DESIGNATOR(S)

5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (WARTIME USE) *(X one)* ☐ a. YES ☐ b. NO

6. INFORMATION TRANSFER REQUIREMENTS

7. ESTIMATED INITIAL COST OF THE SYSTEM

8. TARGET DATE FOR

a. APPLICATION APPROVAL	b. SYSTEM ACTIVATION	c. SYSTEM TERMINATION

9. SYSTEM RELATIONSHIP AND ESSENTIALITY

10. REPLACEMENT INFORMATION

11. RELATED ANALYSIS AND/OR TEST DATA

12. NUMBER OF MOBILE UNITS

13. GEOGRAPHICAL AREA FOR

a. STAGE 2

b. STAGE 3

c. STAGE 4

14. LINE DIAGRAM See page(s)	15. SPACE SYSTEMS See page(s)
16. TYPE OF SERVICE(S) FOR STAGE 4	17. STATION CLASS(ES) FOR STAGE 4

18. REMARKS

DOWNGRADING INSTRUCTIONS	CLASSIFICATION	
N/A	UNCLASSIFIED	

APPLICATION FOR FOREIGN SPECTRUM SUPPORT	CLASSIFICATION: UNCLASSIFIED	PAGE of Pages

FOREIGN COORDINATION GENERAL INFORMATION

1. APPLICATION TITLE

2. SYSTEM NOMENCLATURE

3. STAGE OF ALLOCATION *(X one)*

☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☐ c. STAGE 3 DEVELOPMENTAL ☐ d. STAGE 4 OPERATIONAL

4. FREQUENCY REQUIREMENTS

a. FREQUENCY(IES)

b. EMISSION DESIGNATOR(S)

5. PROPOSED OPERATING LOCATIONS OUTSIDE US&P

6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS

7. INFORMATION TRANSFER REQUIREMENTS

8. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT

9. REPLACEMENT INFORMATION

10. LINE DIAGRAM See page(s)	11. SPACE SYSTEMS See page(s)

12. PROJECTED OPERATIONAL DEPLOYMENT DATE

13. REMARKS

DOWNGRADING INSTRUCTIONS	CLASSIFICATION	
N/A	UNCLASSIFIED	

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