

<b>APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION</b>		CLASSIFICATION UNCLASSIFIED	DATE	FORM APPROVED OMB No. 0704-0188 Page 1 of Pages
<b>DOD GENERAL INFORMATION</b>				
TO		FROM		
1. APPLICATION TITLE				
2. SYSTEM NOMENCLATURE				
3. STAGE OF ALLOCATION <input type="checkbox"/> a. STAGE 1 <input type="checkbox"/> b. STAGE 2 <input type="checkbox"/> c. STAGE 3 <input type="checkbox"/> d. STAGE 4 (X one)                      CONCEPTUAL                      EXPERIMENTAL                      DEVELOPMENTAL                      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 <input type="checkbox"/> a. SUPERSEDED J/F 12/ <input type="checkbox"/> b. RELATED J/F 12/			11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11? <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO <input type="checkbox"/> 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 N/A		CLASSIFICATION UNCLASSIFIED		

**TRANSMITTER EQUIPMENT CHARACTERISTICS**

<b>1. NOMENCLATURE, MANUFACTURER'S MODEL NO.</b> IPnDDL2300	<b>2. MANUFACTURER'S NAME</b> Microhard Systems Inc.
<b>3. TRANSMITTER INSTALLATION</b>	<b>4. TRANSMITTER TYPE</b> COFDM
<b>5. TUNING RANGE</b> 2.304GHz to 2.359GHz	<b>6. METHOD OF TUNING</b> Synthesis PLL
<b>7. RF CHANNELING CAPABILITY</b> 1MHz step (4MHz and 8MHz Channels)	<b>8. EMISSION DESIGNATOR(S)</b>  5M7D1DEF 11M1D1DEF
<b>9. FREQUENCY TOLERANCE</b> 2 ppm	
<b>10. FILTER EMPLOYED (X one)</b> <input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO	
<b>11. SPREAD SPECTRUM (X one)</b> <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO	<b>12. EMISSION BANDWIDTH (X and complete as applicable)</b> <input type="checkbox"/> CALCULATED <input checked="" type="checkbox"/> MEASURED
<b>13. MAXIMUM BIT RATE</b> 18Mbps (RAW)	<b>a. -3 dB</b> 4.0MHz / 8MHz    (Half / Full BW) <b>b. -20 dB</b> 4.3MHz / 8.48MHz <b>c. -40 dB</b> 5.2MHz / 9.7MHz <b>d. -60 dB</b> 14.5MHz / 25.0MHz <b>e. OC-BW</b> 4.2MHz / 8.38MHz
<b>14. MODULATION TECHNIQUES AND CODING</b> COFDM (QPSK/16QAM)	<b>15. MAXIMUM MODULATION FREQUENCY</b> N/A
<b>16. PRE-EMPHASIS (X one)</b> <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO	<b>17. DEVIATION RATIO</b> N/A
<b>19. POWER</b> <b>a. MEAN</b> up to 1 Watt (optional higher power available 2W) <b>b. PEP</b> up to 1Watt	<b>18. PULSE CHARACTERISTICS</b> N/A  <b>a. RATE</b> <b>b. WIDTH</b> <b>c. RISE TIME</b> <b>d. FALL TIME</b> <b>e. COMP RATIO</b>
<b>20. OUTPUT DEVICE</b> InGaP HBT	<b>21. HARMONIC LEVEL</b> <b>a. 2<sup>nd</sup></b> -55 dBc  <b>b. 3<sup>rd</sup></b> -60 dBc  <b>c. OTHER</b>
<b>22. SPURIOUS LEVEL</b> -60 dBc	<b>23. FCC TYPE ACCEPTANCE NO.</b>  N/A

**24. REMARKS**

BOX 19.    2W order Option available for Government Users “-2W”

**Microhard Systems Inc.**  
 #150 Country Hills Landing  
 Calgary, AB, Canada  
 T3K 5P3  
 Phone: (403) 248-0028  
 Fax: (403) 248-2762  
 Attn: Hany Shenouda

**RECEIVER EQUIPMENT CHARACTERISTICS**

<b>1. NOMENCLATURE, MANUFACTURER'S MODEL NO.</b> IPhDDL2300				<b>2. MANUFACTURER'S NAME</b> Microhard Systems Inc.			
<b>3. RECEIVER INSTALLATION</b>				<b>4. RECEIVER TYPE</b> Zero IF receiver			
<b>5. TUNING RANGE</b> 2.304GHz to 2.359GHz				<b>6. METHOD OF TUNING</b> Synthesis PLL			
<b>7. RF CHANNELING CAPABILITY</b> 1MHz step (4MHz and 8MHz Channels)				<b>8. EMISSION DESIGNATOR(S)</b>  5M7D1DEF 11M1D1DEF			
<b>9. FREQUENCY TOLERANCE</b> 2 ppm							
<b>10. IF SELECTIVITY</b>		<b>1st</b>	<b>2<sup>nd</sup></b>	<b>11. RF SELECTIVITY (X and complete as applicable)</b>			
a. -3 dB	+/- 4 MHz +/- 7MHz			<input type="checkbox"/> CALCULATED <input checked="" type="checkbox"/> MEASURED			
b. -20 dB	+/- 10MHz +/- 12MHz			a. -3 dB	75MHz		
c. -60 dB	+/- 21MHz +/- 26MHz  (40dB)			b. -20 dB	120 MHz		
<b>12. IF FREQUENCY</b>				c. -60 dB	180 MHz		
				d. Preselection Type SAW Bandpass Filter			
a. 1st      Zero IF Receiver				<b>13. MAXIMUM POST DETECTION FREQUENCY</b> N/A			
b. 2nd				<b>14. MINIMUM POST DETECTION FREQUENCY</b> N/A			
c. 3rd				<b>16. MAXIMUM BIT RATE</b> 18Mbps			
<b>15. OSCILLATOR TUNED</b>		<b>1<sup>st</sup></b>	<b>2nd</b>	<b>17. SENSITIVITY</b>			
a. ABOVE TUNED FREQUENCY				a. SENSITIVITY      -97 dBm @ 6Mbps			
b. BELOW TUNED FREQUENCY				b. CRITERIA      <10% Packet Error Rate			
c. EITHER ABOVE OR BELOW THE FREQUENCY				c. NOISE FIG      ≈ 3 dB			
<b>18. DE-EMPHASIS (X one)</b> <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO				d. NOISE TEMP      N/A			
<b>19. IMAGE REJECTION</b> N/A				<b>20. SPURIOUS REJECTION</b> > 70 dBc (Out of Band)			

**21. REMARKS**

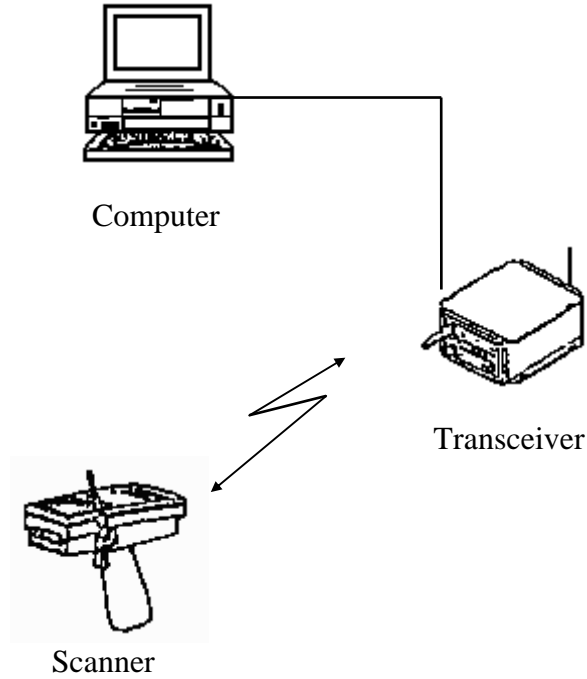
**Microhard Systems Inc.**  
 #150 Country Hills Landing  
 Calgary, AB, Canada  
 T3K 5P3  
 Phone: (403) 248-0028  
 Fax: (403) 248-2762  
 Attn: Hany Shenouda

--	--

**ANTENNA EQUIPMENT CHARACTERISTICS**

1. <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input type="checkbox"/> c. TRANSMITTING AND RECEIVING	
2. NOMENCLATURE, MANUFACTURER'S MODEL NO.	3. MANUFACTURER'S NAME
4. FREQUENCY RANGE	5. TYPE
6. POLARIZATION	7. SCAN CHARACTERISTICS
8. GAIN	a. TYPE
a. MAIN BEAM	b. VERTICAL SCAN
b. 1st MAJOR SIDE LOBE	(1) Max Elev
9. BEAMWIDTH	(2) Min Elev
a. HORIZONTAL	(3) Scan Rate
b. VERTICAL	c. HORIZONTAL SCAN
10. REMARKS	(1) Sector Scanned
10. REMARKS	(2) Scan Rate
10. REMARKS	d. SECTOR BLANKING ( <i>X one</i> ) <input type="checkbox"/> (1) YES <input type="checkbox"/> (2) NO

**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.

<b>APPLICATION FOR SPECTRUM REVIEW</b>		CLASSIFICATION: <b>UNCLASSIFIED</b>	PAGE _____ of Pages
<b>NTIA GENERAL INFORMATION</b>			
1. APPLICATION TITLE			
2. SYSTEM NOMENCLATURE			
3. STAGE OF ALLOCATION ( <i>X one</i> )			
<input type="checkbox"/> a. STAGE 1 CONCEPTUAL <input type="checkbox"/> b. STAGE 2 EXPERIMENTAL <input type="checkbox"/> c. STAGE 3 DEVELOPMENTAL <input type="checkbox"/> d. STAGE 4 OPERATIONAL			
4. FREQUENCY REQUIREMENTS			
a. FREQUENCY(IES)			
b. EMISSION DESIGNATOR(S)			
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (WARTIME USE) ( <i>X one</i> )			
<input type="checkbox"/> a. YES <input type="checkbox"/> 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 N/A		CLASSIFICATION UNCLASSIFIED	

<b>APPLICATION FOR FOREIGN SPECTRUM SUPPORT</b>	<b>CLASSIFICATION: UNCLASSIFIED</b>	<b>PAGE</b> _____ <b>of Pages</b> _____
<b>FOREIGN COORDINATION GENERAL INFORMATION</b>		
<b>1. APPLICATION TITLE</b>		
<b>2. SYSTEM NOMENCLATURE</b>		
<b>3. STAGE OF ALLOCATION</b> ( <i>X one</i> ) <input type="checkbox"/> a. STAGE 1 CONCEPTUAL <input type="checkbox"/> b. STAGE 2 EXPERIMENTAL <input type="checkbox"/> c. STAGE 3 DEVELOPMENTAL <input type="checkbox"/> d. STAGE 4 OPERATIONAL		
<b>4. FREQUENCY REQUIREMENTS</b> a. FREQUENCY(IES) b. EMISSION DESIGNATOR(S)		
<b>5. PROPOSED OPERATING LOCATIONS OUTSIDE US&amp;P</b>		
<b>6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS</b>		
<b>7. INFORMATION TRANSFER REQUIREMENTS</b>		
<b>8. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT</b>		
<b>9. REPLACEMENT INFORMATION</b>		
<b>10. LINE DIAGRAM</b> See page(s)	<b>11. SPACE SYSTEMS</b> See page(s)	
<b>12. PROJECTED OPERATIONAL DEPLOYMENT DATE</b>		
<b>13. REMARKS</b>		
<b>DOWNGRADING INSTRUCTIONS</b> N/A	<b>CLASSIFICATION</b> UNCLASSIFIED	