

## SUMMARY OF ACTIVE DEVICES

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FCC ID: IHET5DS1

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# SUMMARY OF ACTIVE DEVICES

## Section A

MPC6 – Multicoupler Preselector Card

## Multicoupler Preselector Card (MPC6)

| <u>Device Type</u> | <u>Component Description</u>       | <u>Operating Frequencies</u> |
|--------------------|------------------------------------|------------------------------|
| MMPT3906LT1        | Transistor PNP 40V 2A              | D.C.                         |
| MMBT3904LT1        | Transistor NPN 40V 2A              | D.C.                         |
| MC33164D-5R2       | IC Undervolt Sensing Ckt, Motorola | D.C.                         |
| MMSZ6685T          | Zener Diode 3.9V 500mV, Motorola   | D.C.                         |
| MMBD6050LT1        | Diode 70V, 5A, Motorola            | D.C.                         |
| HSMP-3800-L31      | RF PIN Diode                       | 1850-1910 MHz                |
| PALCE22VIOH-15JC/4 | IC Programmable Logic Device       | D.C.                         |
| BRPG1204W-TR       | Bicolor LED 70mA 2.5V              | D.C.                         |
| BCW69              | Transistor PNP                     | D.C.                         |
| CFK-0301           | RF FET                             | 1850-1910 MHz                |
| MGA-82563          | IC RF Amplifier                    | 1850-1910 MHz                |
| SNA-486            | IC RF Amplifier                    | 1850-1910 MHz                |
| MMBZV6ALT1         | Dual Diode Common Anode 5.6V       | D.C.                         |
| MC33060ADR2        | PWM Control Circuit                | D.C.                         |
| MTD2955ET4         | Power MOSFET Pch 60V, 12A          | D.C.                         |
| MBRD340T4          | Rectifier Schottky, 3A, 40V        | D.C.                         |
| MC33182DR2         | Low Pwr Dual Op-Amp                | D.C.                         |
| P6SMB12CAT3        | 12V Transient Suppressor           | D.C.                         |

## Multicoupler Preselector Card (MPC6)

(continued)

| <u>Device Type</u> | <u>Component Description</u>        | <u>Operating Frequencies</u> |
|--------------------|-------------------------------------|------------------------------|
| MMBD7000           | Zener Diode                         | D.C.                         |
| RELAY_G6S_2G_DC12  | DPDT 12V Relay                      | D.C.                         |
| MBRS140T3          | Schottky Rectifier40V 1A            | D.C.                         |
| LT1054IS           | IC Voltage Converter with Regulator | D.C.                         |
| LM317              | Adj. Voltage Regulator 500mA        | D.C.                         |
| X9241              | IC CMOS Quad EEPOT                  | D.C.                         |
| MC3303DR2          | IC Gen Purpose Quad Op-Amp          | D.C.                         |
| X2502D             | IC EPROM 256x8                      | D.C.                         |

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# SUMMARY OF ACTIVE DEVICES

## Section B

GLI2 – Group Line Interface Card

## Group Line Interface II (GLI2)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u>     |
|--------------------|------------------------------|----------------------------------|
| MB3240T10TBDG60    | DRAM 4Mx32 DIMM              | 40 MHz                           |
| VSA51015           | 32.768MHz PLL-VCXO           | 32.768 MHz                       |
| SG-636PCE          | 40MHz OSC                    | 40 MHz                           |
| MAX732CWE          | FLASH PWR SUPPLY             | 170 kHz                          |
| I74F776A           | FUTURE BUS RX                | 2.048 MHz                        |
| I74F777A           | FUTURE BUS TX                | 2.048 MHz                        |
| LTC1435CS          | SWITCHER IC                  | 230 kHz                          |
| MPC860MHzP40       | MICROPROCESSOR               | 40MHz                            |
| MC10ELT21          | PECL                         | 3 MHz                            |
| MPC946FAR2         | CLOCK DIST IC                | 40 MHz, 20 MHz                   |
| MC68160CFB         | EEST                         | 20 MHz                           |
| MC34058FTA         | RS485 XCVR                   | 4.096 MHz                        |
| MC74LCX16244DTR2   | BUFFERS                      | 2.048 MHz                        |
| SX05TR009ZQ01      | PPC ASIC                     | 40MHz                            |
| MT9082AP           | TSI DIGITAL SWITCH           | 8.192 MHz                        |
| PEB2254H-V13       | E1/T1 FRAMER/LIU/HDLC        | 8.192, 12.352 MHz,<br>16.384 MHz |
| OR2C26A-3PS208-DB  | LUCENT FPGA                  | 8.192, 16.384 MHz<br>20 MHz      |
| W42C70-01G         | ZERO DELAY BUFFER            | 16 MHz                           |
| MAX250ESD          | RS232 XCVR                   | 9600 - 19.2K BPS                 |
| MAX251ESD          | 9600 - 19.2K BPS             | RS232 XCVR                       |

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# **SUMMARY OF ACTIVE DEVICES**

## **Section C**

GLI3 – Group Line Interface Card

### Group Line Interface III (GLI3) Active Device List

| Device Type           | Component Description                         | Operating Frequency            |
|-----------------------|-----------------------------------------------|--------------------------------|
| DCS0502S-1            | -9V Power Converter Module                    | 100KHz                         |
| 108612961             | 5V-3.3V,6A Power Module, VREG_00H05           | 1MHz                           |
| 108612953             | 5V-2.5V,6A Power Module, VREG_00H06           | 1MHz                           |
| MC044X5-202 32.768MHz | 32.768MHz VCXO                                | 32.768MHz                      |
| MMBD6050              | Small Signal Switch Diode 70V                 | 20MHz                          |
| CB3LV_3I_50           | 50MHz Clock Oscillator                        | 50MHz                          |
| CB3LV_3I_25           | 25MHz Clock Oscillator                        | 25MHz                          |
| CB3LV_2I_66           | 66MHz Clock Oscillator                        | 66MHz                          |
| CB3LV_3I_20           | 20MHz Clock Oscillator                        | 20MHz                          |
| DAC8562FS             | 12-bit DAC                                    | 100Hz                          |
| MPC8260A              | PowerQUICCII 8260                             | 66MHz (233MHz/166MHz Internal) |
| MSC8101               | StarCore DPS                                  | 50MHz (250MHz/125MHz internal) |
| MC74ACT244            | Octal Buffer/Line Driver with 3 State Outputs | DC - 66MHz                     |
| MC10ELT21             | 5V Differential PECL To TTL Translator        | 3MHz                           |
| MPC9446FA             | 2.5V and 3.3V LVCMOS Clock Fanout Buffer      | 66MHz                          |
| MC74LCX04             | Low-Voltage CMOS Hex Inverter                 | DC - 20MHz                     |
| 74LCX16244            | Low-Voltage 16-Bit Buffer                     | DC - 66MHz                     |
| 74LCX16245            | Low-Voltage CMOS 16-Bit Transceiver           | 4MHz - 66MHz                   |
| DS1706                | Watchdog/reset                                | 2 MHz                          |
| PEB22554HT-V13        | Quad Framer/LIU                               | 16MHz                          |
| DP8392C               | Coax Xcvr Interface                           | 20MHz                          |
| MAX250                | Isolated RS-232 Drivers/Receivers             | 9.6kHz -115kHz                 |
| MAX251                | Isolated RS-232 Drivers/Receivers             | 9.6kHz -115kHz                 |
| SN74CBTD3384DBR       | 10-bit FET Bus Switch                         | DC - 32.768MHz                 |
| RC28F128J3A-150SL56M  | Flash-Bulk 16MB                               | 66MHz                          |
| DP83910AV             | Serial Network Interface                      | 20MHz                          |
| XCV1000E_CNTRL        | 1M Gate Xilinx FPGA                           | 32.768MHz and 66MHz            |
| MAX3232ESE            | RS-232 Transceiver                            | 115kHz                         |
| MAX4624               | Analog Switch                                 | 1.5MHz - 2MHz                  |
| ADG774A               | Analog Mux                                    | 62MHz                          |
| MT48LC16M16A2TG-7E    | SDRAM 32MB                                    | 66MHz                          |
| MT48LC8M16A2TG-7E     | SDRAM 16MB                                    | 66MHz                          |
| MT48LC2M32B2TG-7IT    | SDRAM 8MB                                     | 50MHz                          |
| CY7B991V-5JI          | Robo Clock                                    | 16MHz                          |
| HCPL0661              | Optocoupler                                   | 9.6kHz -115kHz                 |
| W194-70               | Zero Delay Buffer                             | 16MHz                          |
| BCM5327M KQM          | 9-Port Ethernet Switch                        | 25MHz                          |
| MT90823ABX90          | 3V TDM Switch                                 | 8MHz                           |
| BCM5222 KPF           | PHY Transceiver                               | 25MHz                          |
| EPM7256BF1256-7       | High Performance CPLD                         | 66MHz                          |
| SN65LBC170DB          | Triple Differential Xcvr                      | 4.8kHz - 4MHz                  |



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# SUMMARY OF ACTIVE DEVICES

## Section D

BBX2 – Broadband Transceiver Card

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX2-DBP STLF4014DD

### Digital Module

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| XC5210             | Xilinx FPGA                  | 20 MHz                       |
|                    |                              | 19.6608 MHz                  |
|                    |                              | 1 MHz                        |
| 74LCX574           | Octal FlipFlop               | 19.6608 MHz                  |
| BRPG1204W-TR       | Red/Green LED                | 0 - 2 Hz                     |
| MMBT3904LT1        | NPN Transistor               | DC                           |
|                    |                              | 0 - 2 Hz                     |
| 74ACT02            | Quad 2In NOR                 | 20 MHz                       |
| AD9762             | 12Bit DAC                    | 4.9152 MHz                   |
| AD826AR            | Dual Op Amp                  | 0 - 630 KHz                  |
| MC79M05BDTRK       | 5V Linear Regulator          | DC                           |
| MC33269DT_3.3      | 3.3V Linear Regulator        | DC                           |
| MC33161            | Univ Voltage Ref             | DC                           |
| MMSZ5237BT1        | 8.2V Zener Diode             | DC                           |
| MC33063AD          | DC to DC Converter           | 45 KHz                       |
| MMDF2P02HDR2       | Dual P-channel FET           | 45 KHz                       |
| MBRS340T3          | 3.0A Schottky Diode          | 45 KHz                       |
| MC10ELT21D         | PECL to TTL Converter        | 3 MHz                        |

## 800MHz BBX2-DBP STLF4014DD (continued)

### Digital Module cont.

| <u>Device Type</u> | <u>Component Description</u>     | <u>Operating Frequencies</u> |
|--------------------|----------------------------------|------------------------------|
| MC10H641           | Octal ECL to TTL Clk Distributor | 19.6608 MHz                  |
| MC10EL16D          | ECL Buffer                       | 19.6608 MHz                  |
| MC10EL58           | PECL Buffer                      | 19.6608 Mhz                  |
| MC100ELT23         | PECL to TTL                      | 19.6608 Mhz                  |
| 74ABT125D          | BiCMOS Hex Tri-state Buffer      | DC                           |
|                    |                                  | 4.096 MHz                    |
| ISPLSI2032         | Lattice CPLD                     | 0.5 Hz                       |
|                    |                                  | 3 MHz                        |
|                    |                                  | 19.6608 MHz                  |
|                    |                                  | 50 MHz                       |
| SG615HC-50.0000MHz | 50Mhz Crystal Oscillator         | 50 MHz                       |
| 74HC4066           | Analog Mux                       | 3 MHz                        |
| 74ACT08            | Quad 2In And                     | DC                           |
|                    |                                  | 0.5 Hz                       |
|                    |                                  | 20 MHz                       |
| 74LCX244           | Octal Tri-State Buffer           | 4.096 MHz                    |
|                    |                                  | 100Hz                        |
| MBR0530T1          | 0.5A Schottky Diode              | 100Hz                        |

## 800MHz BBX2-DBP STLF4014DD (continued)

### Digital Module cont.

| <u>Device Type</u>   | <u>Component Description</u> | <u>Operating Frequencies</u> |
|----------------------|------------------------------|------------------------------|
| MC68EN360ZP          | QUICC                        | 20 MHz                       |
| DS1232S              | Reset/Watchdog               | 2 Hz                         |
| HSM636               | 20MHz Crystal Oscillator     | 20 Mhz                       |
| 28F800CV             | FLASH                        | 20 MHz                       |
| MCM518160            | DRAM                         | 20 Mhz                       |
| 74ACT16244           | 16bit Tri-state Buffer       | 20Mhz                        |
| 74ACT245             | 8bit Transceiver             | 20MHz                        |
| SX02RH029DH01        | DTC ASIC                     | 0.5 Hz                       |
|                      |                              | 19.6608 MHz                  |
|                      |                              | 20 MHz                       |
| IDT74FCT162500ATPV18 | Bit Transceiver              | 19.6608 MHz                  |
| MMBD7000LT1          | Dual Diode                   | DC                           |
|                      |                              | 9.6 KHz                      |
|                      |                              | 0 - 630 KHz                  |
| LT1081IS             | RS-232 Transceiver           | 9.6 KHz                      |
| MMSZ5243BT1          | Dual 13V Zener Diode         | DC                           |

## 800MHz BBX2-DBP STLF4014DD (continued)

### RF Control Module

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| MMBD201LT1         | 30V Hot Carrier Diode        | DC                           |
| AD680AR            | 2.5VDC Reference             | DC                           |
| TLC5620            | Serial Quad DAC              | DC                           |
| MC145041           | 11in Serial ADC              | 0 - 630 KHz<br><br>1 Mhz     |

### RXBB Module

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u>                 |
|--------------------|------------------------------|----------------------------------------------|
| AD6600             | 11Bit ADC                    | 238.4MHz<br><br>19.6608Mhz<br><br>39.3216MHz |
| MSM13R2850         | DBP ASIC                     | 19.6608Mhz<br><br>39.3216MHz                 |
| MC10ELT20          | PECL Transceiver             | 19.6608Mhz                                   |
| MC33269DT          | 3.3V Linear Regulator        | DC                                           |
| 74ABT125D          | BiCMOS Hex Tri-state Buffer  | 39.3216MHz                                   |
| MIC2920A-5.0BS     | 5V Linear Regulator          | DC                                           |

## 800MHz BBX2-DBP STLF4014DD (continued)

### RF Reverse Link Module

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| SMD-KA27           | RF-to-IF Mixer               | 824-869 MHz                  |
|                    |                              | 238.4 MHz                    |
| MMBT3904LT1        | NPN Transistor               | DC                           |
| MRF5812            | NPN BJT                      | 824-869 MHz                  |
| MMBT3906LT1        | PNP Transistor               | DC                           |
| MRF9411            | NPN Transistor               | 238.4 MHz                    |
| AD210              | Programmable Attenuator      | 238.4 MHz                    |
| SWD-119            | MA/COM Switch                | DC                           |

### TX Synthesizer Module

| <u>Device Type</u> | <u>Component Description</u>  | <u>Operating Frequencies</u> |
|--------------------|-------------------------------|------------------------------|
| MMBT3904LT1        | NPN Transistor                | DC                           |
| MMBT3904LT1        | NPN Transistor                | 3MHz                         |
| MMBT3906LT1        | NPN Transistor                | DC                           |
| MRF9411LT1         | NPN Transistor                | 869-894MHz                   |
| LM2931             | 5V Adj. Low Dropout Regulator | DC                           |
| MLS9109-00881      | MA/COM Synthesizer module     | 869-894MHz                   |

## 800MHz BBX2-DBP STLF4014DD (continued)

### RX Synthesizer Module

| <u>Device Type</u> | <u>Component Description</u>  | <u>Operating Frequencies</u> |
|--------------------|-------------------------------|------------------------------|
| MMBT3904LT1        | NPN Transistor                | 3MHz                         |
| MMBT3904LT1        | NPN Transistor                | DC                           |
| MRF9411LT1         | NPN Transistor                | 583-613MHz                   |
| LM2931             | 5V Adj. Low Dropout Regulator | DC                           |
| MC79M058           | -5V Regulator                 | DC                           |
| MC33269            | 5V Adj. Regulator             | DC                           |
| MMBZ5231BLT1       | 5.1V Zener Diode              | DC                           |
| MMBD7000LT1        | Diode                         | DC                           |
| SI9400DY           | P-channel MOSFET              | DC                           |
| MLS9038-00598      | MA/COM Synthesizer module     | 583-613MHz                   |
| MRF0904            | Amplifier IC                  | 583-613MHz                   |

### RF Forward Link Module

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| MMBT3906LT1        | PNP Transistor               | DC                           |
| MMBZ5235BLT1       | 6.8V Zener Diode             | DC                           |
| MBR0530T1          | 0.5A Schottky Diode          | DC                           |
| LM2937IMP-5.0      | 5 Volt Regulator             | DC                           |
| MMBT3904LT1        | NPN Transistor               | 0-630KHz                     |

## 800MHz BBX2-DBP STLF4014DD (continued)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| X9312              | Digital EEPOT                | 1 MHz                        |
| RF2422             | Modulator                    | 869-894MHz                   |
| LDC33B030GC0900A   | Quadrature Coupler           | 869-894MHz                   |
| HSMP3800           | Single Package Diode         | DC                           |
| MRF5812            | RF Transistor                | 869-894MHz                   |
| MC33269            | Adjustable Low-Dropout Reg.  | DC                           |
| Si9400DY           | FET                          | DC                           |
| MMBZ5231BLT1       | 5.1V Zener Diode             | DC                           |
| MMBD7000           | Dual 100V Diode              | DC                           |
| MMBT3904LT1        | NPN Transistor               | DC                           |
| MRFIC0904          | 900MHz Amp                   | 869-894MHz                   |
| LDC33B100J0900A    | Directional Coupler          | 869-894MHz                   |
| MC33182            | Op Amp                       | 0-630KHz                     |
| AD603              | Op Amp                       | 0-630KHz                     |
| HSMS-2825          | Detector Diode               | 0-630KHz, DC                 |
| HSMS-2825          | Detector Diode               | 869-894MHz, DC               |



**800MHz BBX2-DBP STLF4014DD**  
**(continued)**

**RF Forward Link Module**

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| OPA2234U           | Op Amp                       | DC                           |
| MC79M05BDTRK       | 5V Negative Regualtor        | DC                           |
| DS1620             | Temperature Sensor           | DC-1.75MHz                   |

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# SUMMARY OF ACTIVE DEVICES

## Section E

BBX-1X – Broadband Transceiver Card

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX 1X

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequency</u> |
|--------------------|------------------------------|----------------------------|
| LVCO3992U          | oscillator                   | 585 - 611MHz               |
| LVCO3992U          | oscillator                   | 824 - 849MHz               |
| SG615HC            | oscillator                   | 50MHz                      |
| BFP420             | NPN transistor               | 238.4 MHz                  |
| BRPG1204W          | Red/Green LED                | 0-2 Hz                     |
| MMBT3904LT1        | NPN transistor               | D.C.                       |
| MMDF2P02HD         | P-channel mos FET            | D.C.                       |
| MTB75N05HD         | NPN transistor               | D.C.                       |
| MMBT3904LT1        | PNP transistor               | D.C.                       |
| MMBT3906LT1        | PNP transistor               | D.C.                       |
| MBT3906DW1T1       | NPN transistor               | D.C.                       |
| MBT3904DW1T1       | NPN transistor               | D.C.                       |
| MMBT3904WT1        | diode                        | 19.6608 MHz                |
| MBT3946DW1T1       | dual PNP/NPN transistor      | D.C.                       |
| MMBD301LT1         | diode                        | D.C.                       |
| MMBZ5240BLT1       | zener diode                  | D.C.                       |
| MMSZ5237BT1        | zener diode                  | D.C.                       |
| MMSZ5243BT1        | zener diode                  | D.C.                       |
| MBRD340T4          | diode                        | D.C.                       |

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX 1X

| <u>Device Type</u> | <u>Component Description</u>              | <u>Operating Frequency</u>                        |
|--------------------|-------------------------------------------|---------------------------------------------------|
| MBR0530T1          | Schottky Power Rectifier Diode            | D.C.                                              |
| MMBD7000LT1        | Dual Swithing Diode                       | D.C. & D.C.                                       |
| MMBD914LT1         | High-Speed Swithing Diode                 | D.C.                                              |
| HSM633             | 20 MHz Crystal Oscillator                 | 20 MHz                                            |
| HSMS-2825-L31      | RF Schottky Barrier Diodes                | 6 MHz                                             |
| BFG-541            | Wideband Transistor                       | 800 MHz                                           |
| HSMS282k           | RF Schottky Barrier Diodes                | 625 kHz & 800 MHz                                 |
| MA4P274-1068       | Dual PIN Diodes                           | 800 MHz                                           |
| AD826AR            | opamp                                     | D.C.                                              |
| AD680              | 2.5 V Bandgap Reference                   | D.C.                                              |
| max148beap         | Analog to Digital Converter               | 694.4 kHz                                         |
| LM2991S            | Negative Low Dropout Adjustable Regulator | D.C.                                              |
| MSM13R2850         | DBP ASIC                                  | 0.5 Hz, 625 kHz,<br>19.6608 MHz, &<br>39.3216 MHz |
| 74FCT162500ATPV    | 18-Bit Transceiver                        | 19.6608 MHz & 39.3216<br>MHz                      |
| LTC1421IG          | Hot Swap Controller                       | D.C.                                              |
| MC68EN360ZP25VL    | QUICC Processor                           | 20 MHz                                            |
| MC74HC4066DR2      | Analog Mux                                | 3 MHz                                             |
| MC74VHCT244A       | Dual Tri-state Buffer                     | 625 kHz                                           |

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX 1X

| <u>Device Type</u> | <u>Component Description</u>          | <u>Operating Frequency</u>                              |
|--------------------|---------------------------------------|---------------------------------------------------------|
| MC74ACT125DR2      | Quad Tri-state Buffer                 | 0.5 Hz, 2 Hz, 3 MHz,<br>19.6608 MHz, and<br>39.3216 MHz |
| MC10H641           | PDECL-TTL 1:9 Clk Drvr                | 19.6608 MHz                                             |
| MC10EL16DR2        | PDECL Receiver                        | 19.6608 MHz                                             |
| MC100ELT23DR2      | PDECL to TTL Translator               | 19.6608 MHz                                             |
| MC10ELT21          | PECL to TTL Converter                 | 3 MHz & 19.6608 MHz                                     |
| MC10EL11DR2        | 5V ECL 1:2 Differential Fanout Driver | 19.6608 MHz                                             |
| MC100EL58DR2       | 2:1 Multiplexer                       | 19.6608 MHz                                             |
| MC33063ADR2        | DC to DC Converter                    | 45 kHz                                                  |
| MC33161D           | Univ Voltage Ref                      | D.C.                                                    |
| LM2903DR2          | Dual Comparators                      | D.C.                                                    |
| MC74LCX02          | Quad 2-Input NOR                      | 20 MHz                                                  |
| MC74LCX08DTR2      | Quad 2-Input AND                      | 20 MHz                                                  |
| MC74LCX32DTR2      | Quad 2-Input OR                       | 20 MHz                                                  |
| MC74LCX244DTR2     | Dual Tri-state Buffer                 | 100 Hz, 9.6 kHz, 625<br>kHz, 1 MHz, 4.096 MHz,          |
| MC74LCX125DTR2     | Quad Tri-state Buffer                 | 17 Hz & 625 kHz                                         |
| MC74LCX574DTR2     | Octal D-type Flip-Flop                | 19.6608 MHz                                             |
| MC74LCX374         | Octal D-type Flip-Flop                | 39.3216 MHz                                             |
| DS1819AR-20        | Reset/Watchdog Timer                  | 2 Hz                                                    |
| AD6600             | Analog to Digital Converter           | 19.6608 MHz & 39.3216                                   |

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX 1X

| <u>Device Type</u>    | <u>Component Description</u>        | <u>Operating Frequency</u>                      |
|-----------------------|-------------------------------------|-------------------------------------------------|
| TMP01ES               | Programmable Temperature Controller | D.C.                                            |
| AD603AR               | opamp                               | 0 - 1.2289 MHz                                  |
| TLC5620ID             | DAC Quad 8-Bit                      | 625.0 KHz - 5.0 MHz                             |
| 74ACT16244            | Buffer/ Driver                      | D.C.                                            |
| LT1081IS              | RS-232 Transceiver                  | 9.6 KHz                                         |
| AT65-0413             | Attenuator Digital                  | 238.4 MHz                                       |
| AD9767                | 14 Bit Dual Transmitt DAC           | 10.0 MHz                                        |
| AD8402AR1             | Power                               | 625.0 KHz - 5.0 MHz                             |
| OPA2227               | opamp                               | D.C.                                            |
| RF2126                | High Power Linear Amp               | 1800 - 2500 MHz                                 |
| rf2484                | Direct Quad. Modulator              | 800 - 2500 MHz                                  |
| LP3965EMPX-ADJ        | Voltage Regulator                   | D.C.                                            |
| RF2172                | Amp                                 | 585 -610 MHz                                    |
| ispLSI2032VE-180LT44I | Lattice CPLD                        | 0.5 Hz, 3 MHz, 19.6088 MHz, and 50 MHz          |
| RC28F320C3BA110       | Flash Memory                        | 20 MHz                                          |
| KM416V1204CT          | DRAM                                | 20 MHz                                          |
| XCS40XL-4BG256I       | Xilinc FPGA                         | .5 Hz, 10 MHz, 20 MHz, 19.6608 MHz, 39.3216 MHz |
| CY7B991-5JI           | Prg. Skew Clk Buffer                | 19.6608 MHz                                     |

# Broadband Transceiver/Digital Baseband Processor

## 800MHz BBX 1X

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequency</u>                            |
|--------------------|------------------------------|-------------------------------------------------------|
| ADF4118BRU         | Oscillator                   | 3.0 GHz                                               |
| LM2991S            | Voltage Regulator            | D.C.                                                  |
| TPS71H01Q          | Voltage Regulator            | D.C.                                                  |
| XCV800-5BG560I0703 | Xilinc FPGA                  | 0.5 Hz, 0.625 - 5 MHz,<br>19.6608 MHz, 39.3216<br>MHz |

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**APPLICANT: MOTOROLA**

**FCC ID: IHET5DS1**

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# **SUMMARY OF ACTIVE DEVICES**

## **Section F**

**BBX-1X-HP – Broadband Transceiver Card**



**Broadband Transceiver/Digital Baseband Processor  
(800 MHz HP BBX 1X)**

| Device Type     | Component Description                 | Operating Frequencies                            |
|-----------------|---------------------------------------|--------------------------------------------------|
| LVCO3992U       | OSCILLATOR                            | 585 - 611 MHz                                    |
| LVCO3992U       | OSCILLATOR                            | 824 - 849 MHz                                    |
| SG615HC         | OSCILLATOR                            | 50 MHz                                           |
| BFP420          | NPN TRANSISTOR                        | 238.4 MHz                                        |
| BRPG1204W       | RED/GREEN LED                         | 0 - 2 Hz                                         |
| MMBT3904LT1     | NPN TRANSISTOR                        | D.C.                                             |
| MMDF2P02HD      | P-CHANNEL MOS FET                     | D.C.                                             |
| MTB75N05HD      | NPN TRANSISTOR                        | D.C.                                             |
| MMBT3904LT1     | PNP TRANSISTOR                        | D.C.                                             |
| MMBT3906LT1     | PNP TRANSISTOR                        | D.C.                                             |
| MBT3906DW1T1    | NPN TRANSISTOR                        | D.C.                                             |
| MBT3904DW1T1    | NPN TRANSISTOR                        | D.C.                                             |
| MMBT3904WT1     | DIODE                                 | 19.6608 MHz                                      |
| MBT3946DW1T1    | DUAL PNP/NPN TRANSISTOR               | D.C.                                             |
| MMBD301LT1      | DIODE                                 | D.C.                                             |
| MMBZ5240BLT1    | ZENER DIODE                           | D.C.                                             |
| MMSZ5237BT1     | ZENER DIODE                           | D.C.                                             |
| MMSZ5243BT1     | ZENER DIODE                           | D.C.                                             |
| MBRD340T4       | DIODE                                 | D.C.                                             |
| MBR0530T1       | SCHOTTKY POWER RECTIFIER DIODE        | D.C.                                             |
| MMBD7000LT1     | DUAL SWITCHING DIODE                  | D.C. & D.C.                                      |
| MMBD914LT1      | HIGH-SPEED SWITCHING DIODE            | D.C.                                             |
| HSM633          | 20 MHz CRYSTAL OSCILLATOR             | 20 MHz                                           |
| HSMS-2825-L31   | RF SCHOTTKY BARRIER DIODE             | 6 MHz                                            |
| BFG-541         | WIDEBAND TRANSISTOR                   | 800 MHz                                          |
| HSMS282K        | RF SCHOTTKY BARRIER DIODE             | 625 kHz & 800 MHz                                |
| HSMP-3810-TR1   | DUAL PIN DIODES                       | 800 MHz                                          |
| AD826AR         | OPAMP                                 | D.C.                                             |
| AD680           | 2.5 V BANDGAP REFERENCE               | D.C.                                             |
| MAX148BEAP      | ANALOG TO DIGITAL CONVERTER           | 694.4 kHz                                        |
| LM2991S         | NEG LOW DROPOUT ADJ REGULATOR         | D.C.                                             |
| MSM13R2850      | DBP ASIC                              | 0.5 Hz, 625 kHz, 19.6608 MHz,<br>39.3216 MHz     |
| 74FCT162500ATPV | 18-BIT TRANSCEIVER                    | 19.6608 MHz & 39.3216 MHz                        |
| LTC14211G       | HOT SWAP CONTROLLER                   | D.C.                                             |
| MC68360ZP25VL   | QUICC PROCESSOR                       | 20 MHz                                           |
| MC74HC4066DR2   | ANALOG MUX                            | 3 MHz                                            |
| MC74VHCT244A    | DUAL TRI-STATE BUFFER                 | 625 kHz                                          |
| MC74ACT125DR2   | QUAD TRI-STATE BUFFER                 | 0.5 Hz, 2 Hz, 3 MHz, 19.6608 MHz,<br>39.3216 MHz |
| MC10H641        | PDECL-TTL 1:9 CLK DRIVER              | 19.6608 MHz                                      |
| MC10EL16DR2     | PDECL RECEIVER                        | 19.6608 MHz                                      |
| MC100ELT23DR2   | PDECL TO TTL TRANSLATOR               | 19.6608 MHz                                      |
| MC10ELT21       | PECL TO TTL CONVERTOR                 | 3 MHz, 19.6608 MHz                               |
| MC10EL11DR2     | 5V ECL 1:2 DIFFERENTIAL FANOUT DRIVER | 19.6608 MHz                                      |

**Broadband Transceiver/Digital Baseband Processor  
(800 MHz HP BBX 1X)**

| Device Type           | Component Description          | Operating Frequencies                           |
|-----------------------|--------------------------------|-------------------------------------------------|
| MC100EL58DR2          | 2:1 MULTIPLEXER                | 19.6608 MHz                                     |
| MC33063ADR2           | DC TO DC CONVERTOR             | 45 kHz                                          |
| MC33161D              | UNIT VOLTAGE REF               | D.C.                                            |
| LM2903DR2             | DUAL COMPARATOR                | D.C.                                            |
| MC74LCX02             | QUAD 2-INPUT NOR               | 20 MHz                                          |
| MC74LCX08DTR2         | QUAD 2-INPUT AND               | 20 MHz                                          |
| MC74LCX32DTR2         | QUAD 2-INPUT OR                | 20 MHz                                          |
| MC74LCX244DTR2        | DUAL TRI-STATE BUFFER          | 100 Hz, 9.6 kHz, 625 kHz, 1 MHz, 4.096 MHz      |
| MC74LCX125DTR2        | QUAD TRI-STATE BUFFER          | 17 Hz, 625 kHz                                  |
| MC74LCX574DTR2        | OCTAL D-TYPE FLIP FLOP         | 19.6608 MHz                                     |
| MC74LCX374            | OCTAL D-TYPE FLIP FLOP         | 39.3216 MHz                                     |
| DS1819AR-20           | RESET/WATCHDOG TIMER           | 2 Hz                                            |
| AD600                 | ANALOG TO DIGITAL CONVERTOR    | 19.6608 MHz, 39.3216 MHz                        |
| TMP01ES               | PROGRAMMABLE TEMP CONTROLLER   | D.C.                                            |
| AD603AR               | OPAMP                          | 0 - 1.2289 MHz                                  |
| TLC5620ID             | DAC QUAD 8-BIT                 | 625 kHz - 5.0 MHz                               |
| 74ACT16244            | BUFFER/DRIVER                  | D.C.                                            |
| AT65-0413             | ATTENUATOR DIGITAL             | 238.4 MHz                                       |
| AD9767                | 14 BIT DUAL TRANSMIT DAC       | 10.0 MHz                                        |
| AD8402AR1             | POWER                          | 625 kHz - 5.0 MHz                               |
| OPA2227               | OPAMP                          | D.C.                                            |
| RF5187                | HIGH POWER LINEAR AMP          | 869 - 894 MHz                                   |
| RF2484                | DIRECT QUAD MODULATOR          | 800 - 2500 MHz                                  |
| LP3965EMPX-ADJ        | VOLTAGE REGULATOR              | D.C.                                            |
| RF2172                | AMP                            | 585 - 610 MHz                                   |
| ISPLSI2032VE-180LT44I | LATTICE CPLD                   | 0.5 Hz, 3 MHz, 19.6088 MHz, 50 MHz              |
| RC28F321C3BA110       | FLASH MEMORY                   | 20 MHz                                          |
| KM416V1204CT          | DRAM                           | 20 MHz                                          |
| XCS40XL-4BG256I       | XILINC FPGA                    | .5 Hz, 10 MHz, 20 MHz, 19.6608 MHz, 39.3216 MHz |
| CY7B991-5JI           | PROGRAMMABLE SKEW CLOCK BUFFER | 19.6608 MHz                                     |
| ADF4118BRU            | OSCILLATOR                     | 3.0 GHz                                         |
| LM2991S               | VOLTAGE REGULATOR              | D.C.                                            |
| TPS71H01Q             | VOLTAGE REGULATOR              | D.C.                                            |
| XCV800-5BG560I0703    | XILINC FPGA                    | 0.5 Hz, 0.625 - 5 MHz, 19.6608 MHz, 39.3216 MHz |
| MMBD6100LT1           | DIODE, DUAL, 70V               | D.C.                                            |
| SM15T10A              | DIODE, 10V, TRANSIENT SUP      | D.C.                                            |
| LM2931CDR2            | IC, REGULATOR, LOW DROPOUT     | D.C.                                            |
| MC79M05BDTRK          | IC, REGULATOR, 5V NEG, 500mA   | D.C.                                            |
| MC79L05ABDR2          | IC, REGULATOR, 5V NEG, 100mA   | D.C.                                            |
| LM2937IMP-5.0         | IC, REGULATOR, 5V DROPOUT      | D.C.                                            |
| LM1117DT-ADJ          | IC, REGULATOR                  | D.C.                                            |

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APPLICANT: MOTOROLA

FCC ID: IHET5DS1

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# SUMMARY OF ACTIVE DEVICES

## Section G

MCC x 24E – Multi Channel CDMA Card

## Multiple Channel CDMA (MCC-24E) Card: Issue O

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |             |
|--------------------|------------------------------|------------------------------|-------------|
| SG636PH-50MHz      | XTAL OSC                     | X2                           | 50 MHz      |
| SG636PFT-20MHz     | XTAL OSC                     | X1, X3                       | 20 MHz      |
| MTD20N03NDLT4      | N Ch FET 30V, 20A            | Q1, Q2                       | ~275 kHz    |
| MMBT3904LT1        | NPN Trans 40V .2A            | Q3, Q4                       | DC          |
| MBRS140T3          | Schottky Diode 1A, 40V       | D1, D2                       | ~275 KHz    |
| SY38157JU02        | EMAXX-II ASIC                | U100,101,200,201             | 19.6608 MHz |
|                    |                              | U300,301,400,401             | 19.6608 MHz |
|                    |                              | U500,501,600,601             | 19.6608 MHz |
| LTC1435CS          | Switching Regulator          | U38                          | ~275 kHz    |
| XC5204-6FQ160C     | 4K Gate FPGA                 | U64                          | 19.6608 MHz |
| XC5215-6FQ160C     | 15K Gate FPGA                | U67                          | 4.096 MHz   |
| XC9572-7PQ100C     | 1.6K Gate ISP EPLD           | U8,U16                       | ~8 MHz      |
| XC9572-10PQ100C    | 1.6K Gate ISP EPLD           | U50,U51                      | ~22 MHz     |
| DS1705ESA          | Reset Controller             | U3,U21,U44-U49               | DC          |
| 74LCX16500MEAX     | 18Bit Trans Latch            | U53,U54,U58,U59              | 19.6608 MHz |
| 74LCX16501MEAX     | 18Bit Trans Latch            | U63,U65,U68,U90              | 19.6608 MHz |
| MC68EN360ZP25      | Comm uP with Ethernet        | U27                          |             |
|                    | 25 MHz                       |                              |             |
| DSP56167FV60       | Digital Signal Processor     | U104,U204,U304               | 44 MHz      |
|                    |                              | U404,U504,U604               | 44 MHz      |
| 74ACT00D           | NAND Quad 2 Input            | U10                          | DC          |
| 74ACT02D           | NOR Quad 2 Input             | U17                          | DC          |
| 74ACT08D           | AND Quad 2 Input             | U2,U39,U40,U41               | DC          |
| 74ACT14D           | Hex Schmitt Trig             | U20,U22                      | DC          |
| 74ACT32D           | OR Quad 2 Input              | U56                          | DC          |
| 74ACT74D           | Dual FF                      | U1,U35,U36,U37               | DC          |
| 74ACT574DW         | Oct D Flip/Flop              | U52                          | DC          |
| 74ACT541DW         | Oct 3ST Line DRVR/CVR        | U57                          | DC          |
| 74ACT05D           | Hex Inverter w/Opn DRN       | U13                          | DC          |

## Multiple Channel CDMA (MCC-24E) Card: Issue O

(continued)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| MC10H641FN         | PDECL-TTL 1:9 Clk Drvr       | U60 19.6608 MHz              |
| MC10EL16D          | PDECL Receiver               | U81,U83 19.6608 MHz          |
| MC10EL58D          | PDECL 2:1 Mux.               | U82 19.6608 MHz              |
| MC100ELT23D        | PDECL to TTL Translator      | U80 19.6608 MHz              |
| MC88913D           | Clk Driver                   | U26 50, 25 MHz               |
|                    |                              | U55 20, 10 MHz               |
| 74LCX244DT         | Oct Line Driver              | U66,U78,U88 4.096 MHz        |
| 74LCX86DT          | QUAD EOR 2 Input             | U69-77, U84-87               |
| MCM6226BJ15        | SRAM 128Kx8                  | U102,103,202,203 22 MHz      |
|                    |                              | U302,303,402,403 22 MHz      |
|                    |                              | U502,503,602,603 22 MHz      |
| MCM518165BT60      | DRAM EDO 16Mx16              | U5,U12 ~8 MHz                |
| 74ABT125D          | Quad Buffer                  | U31,61,62,79 DC              |
| 74FCT162501ATPV    | 18Bit Transceiver            | U25,U30 ~1.4 MHz             |
|                    |                              | U28,29,32,33,34,43 DC        |
| 74FCT162827BTPV    | 20Bit Buffer                 | U23,U24 ~1.4 MHz             |
| LXT907 APC         | Ethernet Interface           | U19 20.0 MHz                 |
| LT1081IS           | RS232 XMTR RCVR              | U9 ~9.6 kHz                  |
| X25020             | Serial 256x8 EEPROM          | U18 DC                       |
| GAL26CV12C-7LJ     | PAL                          | U89 19.6608 MHz              |
| E28F008SC85        | FLASH 1MX8                   | U6,U7,U14 ~1.4 MHz           |

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**APPLICANT: MOTOROLA**

**FCC ID: IHET5DS1**

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# **SUMMARY OF ACTIVE DEVICES**

## **Section H**

**MCC-1X – Multi Channel CDMA Card**

## MCC 1X - Multi Channel CDMA Card

| <u>Device Type</u>  | <u>Component Description</u>              | <u>Operating Frequencies</u> |
|---------------------|-------------------------------------------|------------------------------|
| 108612961           | 5V to 3.3V Switching Regulator            | ~1MHz                        |
| 108612953           | 5V to 2.5V Switching Regulator            | ~1MHz                        |
| MMBT3904LT1         | NPN Trans 40V .2A                         | DC                           |
| SG8002JA-66.0MPCBL3 | XTAL OSC                                  | 66 MHz                       |
| SG8002JC-50.0MPCBL2 | XTAL OSC                                  | 50 MHz                       |
| SM1145CV-25.0MHz    | Non-PLL XTAL OSC                          | 25 MHz                       |
| SN74LVT125DBR       | 3.3V ABT Quad Buffers, 3ST Outputs        | DC                           |
| MC74LCX240DTR2      | Low-Voltage CMOS Octal Buffer             | 25 MHz                       |
| MPC8260ZU200AR2     | PowerQUICC II™ Integrated Comm. Processor | 200 MHz                      |
| MC74HC32AD          | OR Quad 2 Input                           | DC                           |
| MC74ACT14D          | Hex Schmitt Trig                          | DC                           |
| MC74ACT541          | Oct 3ST Line DRVR/CVR                     | DC                           |
| MC74ACT574DW        | Oct D Flip/Flop                           | DC                           |
| MC10H641FN          | PDECL-TTL 1:9 Clock Driver                | 19.6608 MHz                  |
| MC10EL16D           | PDECL Receiver                            | 19.6608 MHz                  |
| MC10EL58D           | PDECL 2:1 Mux                             | 19.6608 MHz                  |
| MC100ELT23          | PDECL to TTL Translator                   | 19.6608 MHz                  |
| MPC946FAR2          | Low Voltage 1:10 CMOS Clock Driver        | 66MHz, 50MHz                 |
| LM317D              | Positive Voltage Regulator                | DC                           |
| MC74LCX00DTR2       | Low-Voltage CMOS Quad 2-Input NAND Gate   | DC                           |
| MC74LCX02DTR2       | Low-Voltage CMOS Quad 2-Input NOR Gate    | DC                           |

# MCC 1X - Multi Channel CDMA Card

(CONTINUED)

| <u>Device Type</u> | <u>Component Description</u>            | <u>Operating Frequencies</u>        |
|--------------------|-----------------------------------------|-------------------------------------|
| MC74LCX74DTR2      | Low-Voltage CMOS Dual D-Type Flip-Flop  | DC                                  |
| MC74LCX244DTR2     | Low Voltage CMOS Octal Buffer           | DC                                  |
| MC74LCX16244DT     | Low-Voltage 16-Bit Buffer               | 33 MHz, 25 MHz,<br>4 MHz, 16MHz     |
| DS1706TESA         | Reset Controller                        | DC                                  |
| EPM7256AEFC256-7   | 256 Logic Cell CPLD                     | 66 MHz                              |
| 74ABT125D          | Quad Buffer, 3ST Outputs                | DC                                  |
| SN74CBTD3384DBR    | 10-Bit FET Bus Switches, Level Shifting | 19.6608 MHz, 39.3216 MHz            |
| CSM5000            | Cell Site Modem ASIC                    | 50MHz                               |
| MT48LC8M16A2TG-75  | SDRAM Memory 2M x 16                    | 66MHz, 50 MHz                       |
| EPM7064BTC44-3     | 64 Logic Cell CPLD                      | 39.3216 MHz                         |
| MAX6301CSA         | Low-Power uP Supervisory Circuit        | DC                                  |
| XC2S100-5FG256C    | 100K Gate FPGA                          | 66 MHz, 19.6608 MHz,<br>39.3216 MHz |
| XC2S200-5FG256C    | 200K Gate FPGA                          | 66 MHz, 4 MHz,<br>8 MHz, 16MHz      |
| E28F128J3A-150     | 16 Mbyte FLASH Memory                   | ~8 MHz, ~6 MHz                      |
| MAX3233ECWP        | 3.3V Dual RS232 Transceiver             | 19.2 kHz                            |
| AL100A-A4          | 8 Port 10/100 Ethernet Switch           | 66 MHz, 25 MHz                      |
| CY7B991V-2JC       | Programmable Skew Clock Buffer          | 4 MHz, 8 MHz, 16 MHz                |
| X24C04S8-2.7       | Serial 256x8 2-wire EEPROM              | DC                                  |



# MCC 1X - Multi Channel CDMA Card

(CONTINUED)

| <b><u>Device Type</u></b> | <b><u>Component Description</u></b> | <b><u>Operating Frequencies</u></b> |
|---------------------------|-------------------------------------|-------------------------------------|
| X25020S-2.7               | Serial 256x8 EEPROM                 | DC                                  |
| M4A3-128/64-55VC          | 128 Macrocell CPLD                  | 50 MHz                              |
| 74LCXR162245MTDX          | 16 Bit Bi-directional Transceiver   | 33 MHz                              |
| LXT971ALC                 | Ethernet Transceiver, Dual Speed    | 25 MHz                              |
| GAL26CV12C-7LJ            | PAL                                 | 19.6608 MHz                         |

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**APPLICANT: MOTOROLA**

**FCC ID: IHET5DS1**

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# **SUMMARY OF ACTIVE DEVICES**

## **Section I**

**MCC-DO – Multi Channel CDMA Card**

## Multi-Channel CDMA Data Only (MCC-DO) Active Device List

| Device Type             | Component Description                              | Operating Frequency                           |
|-------------------------|----------------------------------------------------|-----------------------------------------------|
| AT27BV4096-12JI         | EPROM 512kB                                        | 65.3MHz                                       |
| AT93C56-10SI-2.7        | SERIAL EEPROM 256kB                                | 390kHz                                        |
| EDS2516APTA-75TI        | SDRAM 256MB                                        | 65.3MHz                                       |
| UPD45128163G5-A75LI-9JF | SDRAM 128MB                                        | 65.3MHz                                       |
| CY7C1351B-100AI         | ZBT SSRAM 128kB                                    | 60MHz                                         |
| TC58FVM7T2ATG65CAH      | 16MB FLASH MEMORY                                  | 65.3MHz                                       |
| CY7B991V-5JI            | Robo Clock                                         | 4.096MHz(4.096MHzMHz,16MHz Output)            |
| CY7B991V-5JI            | Robo Clock                                         | 19.6608MHz(19.6608MHz,39.3216MHz Output)      |
| MPC9447FA               | CLOCK FANOUT BUFFER                                | 1.544MHz - 65.3MHz                            |
| MPC8260ACZUMHBB         | PowerQUICCII 8260                                  | 65.3MHz (130.6MHz/195.9MHz Internal)          |
| MPC8250ACZUMHBB         | PowerQUICCII 8260                                  | 65.3MHz (130.6MHz/195.9MHz Internal)          |
| M4A3-32/32-7VI          | High Performance CPLD                              | 19.6608MHz - 25MHz                            |
| EPM7128AETI100-7        | High Performance CPLD                              | 25MHz - 65.3MHz                               |
| XC2V1000-4BG575I        | 1M Gate Xilinx FPGA                                | 4.096MHz - 65.3MHz                            |
| XC18V04PC44I            | 512kB Configuration PROM                           | 20MHz                                         |
| PM4354-PI               | COMET-QUAD                                         | 1.544MHz - 2.048MHz                           |
| BCM5325MA2IQM           | 5-Port Ethernet Switch                             | 2MHz - 25MHz                                  |
| TMS320C6414DGLZA5E0     | DSP                                                | 41.66MHz(499.92MHz Internal)                  |
| HDL4M1NESD301           | MODEM LSI                                          | 39.3216MHz - 60MHz(60MHz,78.6432MHz Internal) |
| LM83CIMQA               | Temperature Sensor                                 | 31.9kHz                                       |
| LXT971ALE               | Fast Ethernet PHY Transceiver                      | 25MHz                                         |
| MAX3232IDW              | RS-232 Transciever                                 | 9.6kHz -115kHz                                |
| MC100EPT21DT            | 3.3V Differential LVPECL to LVTTTL Translator      | 19.6608MHz                                    |
| MC100EPT23D             | 3.3V Dual Differential LVPECL to LVTTTL Translator | 19.6608MHz                                    |
| MC10EP16D               | 3.3V / 5V ECL Differential Receiver/Driver         | 19.6608MHz                                    |
| MC10EP58D               | 3.3V / 5V ECL 2:1 Multiplexer                      | 19.6608MHz                                    |
| DS26LV31TM              | 3V Enhanced CMOS Quad Differential Line Driver     | DC - 1MHz                                     |
| DS26LV32ATM             | 3V Enhanced CMOS Quad Differential Line Receiver   | DC - 1MHz                                     |

| Device Type              | Component Description                     | Operating Frequency        |
|--------------------------|-------------------------------------------|----------------------------|
| MC74LCX16244DT           | Low-Voltage CMOS 16-Bit Buffer            | DC-4.096MHzMHz - 16.384MHz |
| MC74LCX16374DT           | Low-Voltage CMOS 16-Bit D-Type Flip -Flop | 19.6608MHz                 |
| MC74LCX244DT             | Low-Voltage CMOS 8-Bit Buffer             | DC-4.096MHzMHz - 16.384MHz |
| SN74ABT125NS             | BUS BUFFER GATE                           | DC - 19.6608MHz            |
| SN74LV244APW             | Low-Voltage 8-Bit Buffer                  | DC - 65.3MHz               |
| HD74LVC00T               | Low-Voltage CMOS POSITIVE-NAND GATE       | DC - 65.3MHz               |
| SN74LVC04DB              | Low-Voltage CMOS Hex Inverter             | 4.096MHz                   |
| SN74LVC240APW            | Low-Voltage CMOS 8-Bit Buffer             | 25MHz                      |
| SN74LVTH240PW            | Low-Voltage 8-Bit Buffer                  | DC - 60MHz                 |
| SN74LVTH244APW           | Low-Voltage 8-Bit Buffer                  | DC - 65.3MHz               |
| SN74LVTH574PWR           | Low-Voltage 8-Bit D-Type Flip -Flop       | 39.3216MHz                 |
| SN74LVTH16244ADL         | Low-Voltage 16-Bit Buffer                 | DC - 65.3MHz               |
| SN74LVTH16245ADL         | Low-Voltage 16-Bit Transceiver            | DC - 65.3MHz               |
| MIN30F-T(65.3000MHZ)     | 65.3MHz Clock Oscillator                  | 65.3MHz                    |
| MIN35F-T(25.000MHZ)      | 25MHz Clock Oscillator                    | 25MHz                      |
| TCO-7089X1A4(1.5440MHZ)  | 1.544MHz Clock Oscillator                 | 1.544MHz                   |
| TCO-7089X1A4(2.0480MHZ)  | 2.048MHz Clock Oscillator                 | 2.048MHz                   |
| TCO-7087X1A4(4.0960MHZ)  | 4.096MHz Clock Oscillator                 | 4.096MHz                   |
| TCO-7087X1A4(41.6600MHZ) | 41.66MHz Clock Oscillator                 | 41.66MHz                   |
| TCO-7087X1A4(60.0000MHZ) | 60MHz Clock Oscillator                    | 60MHz                      |
| CE-1005                  | +1.25V Power Converter Module             | 550KHz                     |
| HT343                    | +1.5V Power Converter Module              | 550KHz                     |
| HT344                    | +3.3V Power Converter Module              | 550KHz                     |
| LTC1772CS6               | Step-Down DC/DC Controller                | 550KHz                     |

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APPLICANT: MOTOROLA

FCC ID: IHET5DS1

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# SUMMARY OF ACTIVE DEVICES

## Section J

CCD – CDMA Clock Distribution Card

## CDMA Clock Distribution (CCD) Module: Issue A or B

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |             |
|--------------------|------------------------------|------------------------------|-------------|
| GAL22V10C-7LJ      | PAL                          | U2                           | 50 MHz      |
| 2520N-50MHz        | XTAL OSC                     | X1                           | 50 MHz      |
| MMBT3904           | NPN Transistor               | Q1                           | DC          |
| 74ACT04D           | Hex Inverter                 | U1                           | DC          |
| MC10EL16D          | PDECL Receiver               | U5,U8,U9                     | DC          |
|                    |                              | U16                          | 19.6608 MHz |
| MC10EL111FN        | PDECL 1:9 Clk Driver         | U13,U14,U15                  | 19.6608 MHz |
| MC10EL23D          | PDECL to TTL Translator      | U6,U7,U10,U11                | DC          |
|                    |                              | U12                          | 19.6608 MHz |
| DS1232S            | Micro Power Monitor          | U4                           | DC          |
| X25020             | Serial 256x8 EEPROM          | U3                           | DC          |

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# SUMMARY OF ACTIVE DEVICES

## Section K

CSM2 – Clock Synchronization Module w/ GPS

## Clock Synchronization Module (CSM2)

| <u>Device Type</u> | <u>Component Description</u>  | <u>Operating Frequencies</u>      |
|--------------------|-------------------------------|-----------------------------------|
| MJD243RL           | Q13, Q11, Q10, Q9, Q8, Q1     | 3 MHz                             |
| MJD2955T4          | Q15                           | D.C.                              |
| MMFT3055V          | Q17, Q18                      | 307.2 KHz                         |
| MMBT3904           | Q19, Q14, Q12, Q7, Q5, Q4, Q2 | D.C.                              |
| MMBT3906           | Q6, Q3                        | D.C.                              |
| MMBT3906           | Q16                           | 307.2 KHz                         |
| 74ACT14D           | U1                            | 0.5 Hz                            |
| 74ACT14D           | U75, U66, U65, U37            | 1 Hz                              |
| MC14538B           | U10                           | D.C.                              |
| IDT71024S15TY      | U82, U81, U12, U11            | 16 MHz                            |
| 74ACT00D           | U13                           | 19.6608 MHz                       |
| 74ACT00D           | U60                           | D.C.                              |
| AM29F040           | U15, U14                      | 16 MHz                            |
| AD817AR            | U16                           | 19.6608 MHz, 3 MHz                |
| 74ACT245DW         | U19, U17                      | 1 Hz                              |
| AD9850             | U18                           | 19.6608 MHz                       |
| MC68302FC          | U2                            | 16 MHz                            |
| XC5206-160         | U20                           | 307.2 KHz, 19.6608 MHz,<br>10 MHz |
| AD7846JP           | U24                           | 1 Hz                              |
| MC10ELT21D         | U25                           | 10 MHz                            |
| MC78M12            | U26, U53                      | D.C.                              |
| MC10E1651FN        | U27                           | 19.6608 MHz                       |
| LM317D             | U28                           | D.C.                              |
| MC78M15CDTRK       | U29                           | D.C.                              |
| LT1081IS           | U3                            | 130 KHz                           |
| MC79M15CDT         | U30                           | D.C.                              |
| MC100ELT23D        | U31                           | 19.6608 MHz                       |
| MC100ELT23D        | U73, U72                      | D.C.                              |



## Clock Synchronization Module (CSM2)

(continued)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| MC100ELT23D        | U36, U35                     | 19.6608 MHz                  |
| MC100ELT23D        | U78, U77                     | 3 MHz                        |
| LT1054IS           | U32                          | 25 kHz                       |
| MC10EL16D          | U33                          | 19.6608 MHz                  |
| GAL22V10B-7LJ      | U34                          | 50 MHz                       |
| 74ACT74D           | U38                          | 9.8304 MHz                   |
| X25020             | U4                           | D.C.                         |
| 78ST305HC          | U40                          | 1 MHz                        |
| 10H20EV8           | U41                          | 50 MHz                       |
| MC10EL07D          | U49, U43                     | 19.6608 MHz                  |
| MC10EL51D          | U52, U50, U45, U44           | D.C.                         |
| MC10EL51D          | U55                          | 0.5 Hz                       |
| MC10EL31D          | U56, U51, U46                | D.C.                         |
| 75175D             | U74, U59                     | 8000 Hz                      |
| 75175D             | U76, U47                     | 4800 Hz                      |
| 75175D             | U79                          | 9600 Hz                      |
| MC10EL04D          | U57, U48                     | D.C.                         |
| 74ACT05D           | U5                           | D.C.                         |
| 75172BDW           | U67, U54                     | 4800 Hz                      |
| 75172BDW           | U71                          | 0.5 Hz                       |
| MC10EL16D          | U62, U61, U58                | D.C.                         |
| MC10EL16D          | U63                          | 19.6608 MHz                  |
| MC10EL16D          | U64                          | D.C.                         |
| DS1232S            | U6                           | D.C.                         |
| MC10EL111FN        | U68                          | 0.5 Hz                       |
| MC10EL111FN        | U69                          | D.C.                         |
| MC10EL111FN        | U70                          | 19.6608 MHz                  |

## Clock Synchronization Module (CSM2)

(continued)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u> |
|--------------------|------------------------------|------------------------------|
| MC68681FN          | U7                           | 4 MHz, 9600 Hz               |
| 74ACT32D           | U8                           | 16 MHz                       |
| MC34025            | U83                          | 307.2 MHz                    |
| 78M05              | U84                          | D.C.                         |
| 74ACT04D           | U9                           | 16 MHz                       |
| MA505-16MHz        | Y1                           | 16.0 MHz                     |
| 19.6608 MHz VCXO   | Y2                           | 19.6608 MHz                  |
| SG615H-50MHz       | Y3                           | 50 MHz                       |

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# **SUMMARY OF ACTIVE DEVICES**

## **Section L**

LPA – Linear Power Amplifier

# Linear Power Amplifier (LPA)

| Device Type   | Component Description             | Operating Frequencies |
|---------------|-----------------------------------|-----------------------|
| MA4P274       | DIODE PIN                         | <1GHz                 |
| MA-505        | QUARTZ XTAL SURFACE MT 16 MHZ     | 16MHz                 |
| LM4040        | DIODE 5.0V PRECISION SOT23        | DC                    |
| MJD31TD       | TSTR N-CH 60V 20A                 | DC                    |
| 2N7002LT1     | TSTR NPN 40V 3A MJD31T4           | DC                    |
| MMBT3904T     | TSTR NPN 40V .2A GEN PURP         | DC                    |
| MBT3906DW1T1  | TSTR DUAL PNP 40V .2A             | DC                    |
| MMBT3904WT1   | TSTR NPN 40V                      | DC                    |
| MMBD701L      | DIODE 70V HOT CARRIER MMBD701L    | <1GHz                 |
| PWIC7084GR1   | DIODE DL 5.6V COM ANODE           | DC                    |
| PHVIC7085R2   | DIODE 6.8V E5 MMSZ5235BT1         | DC                    |
| MMBZ5V6A      | 12V TRANS SUP 1.5SMC12AT3         | <1GHz                 |
| MMSZ5235BT1   | 33V TRANS SUP 1.5SMC33AT3         | <1GHz                 |
| SUPP6SMB18AT3 | ZENER BPLR 15V FOR ESD SOT23      | DC                    |
| SMC33AT3      | DIODE SCHOTTKY 3A 60V LTB 23/6/99 | DC                    |
| MMBZ15        | DIODE DUAL 70V A7X BAV99LT1       | DC                    |
| MBRD360       | DIODE DUAL 75V A2X MMBD2836LT1    | DC                    |
| BAV99LT1      | DIODE DUAL 100V 5C COMM ANO       | DC                    |
| MMBD2836LT1   | DIODE SLCN 34N02 VCTR A/P         | <1GHz                 |
| MMBD7000LT1   | DIODE DUAL PIN                    | <1GHz                 |
| MMBV105G      | IC LM337L                         | DC                    |
| FQD24N08TF    | IC LOG AMP DET/CONT AD8313        | <1GHz                 |
| SMP1307       | IC OP AMP OP177                   | <1GHz                 |
| LM337L        | IC TEMP SNSR LM60BIM3X SOT23      | DC                    |
| AD8313        | IC OP AMP LMC7101 SOT23           | <1GHz                 |
| OP177         | IC 58HC12, 112 QFP, T&R           | 16MHz                 |
| LM60CIM3X     | IC QUAD 2INP NAND 74HC00AD        | 16MHz                 |
| LMC7101       | IC QUAD 2INP NOR 74HC02AD         | 16MHz                 |
| 68HC12        | IC DUAL D FF W/SET RST 74HC74     | 16MHz                 |
| 74HC00AD      | IC QUAD ANALOG MUX/DEMUX          | 16MHz                 |
| 74HC02AD      | IC MC14066BDR2                    | 16MHz                 |
| 74HC74        | IC HIGH PERF CURRENT MODE CNTR    | 16MHz                 |
| MC74HC4066    | IC ADJ. LOW DROPOUT POS,100MA     | DC                    |
| UC2842A       | REG 15V POS 100MA MC78L15ABDR2    | DC                    |
| LM2931        | REG 5V POS 500MA MC78M05BDTRK     | DC                    |
| MC78M05BDTRK  | IC QD OP AMP GEN PURP MC3303D     | <1GHz                 |
| MC7808        | IC LINEAR LM2940S 8V              | DC                    |
|               | MONOSTABLE MULTIVIBRATOR          | <1GHz                 |
| MC3303D       | CD14538BPWR                       |                       |
| CD14538BPWR   | IC DAC 12CH AD8802 ARU            | 16MHz                 |
| AD8802        | IC RS485 XCVR MAX1482ESD          | 16MHz                 |
| MAX1482ESD    | IC AD5317 QUAD 10BIT SPI          | 16MHz                 |
| AD5317        | IC RS-232 TRANCEIVER              | 16MHz                 |
| MC145407      | IC RESET DC 5V                    | DC                    |
| DS1706        | TSTR 1GHZ, 30 W RFIC              | <1GHz                 |
| DS1706        | TSTR 1GHZ, 15 W RFIC              | <1GHz                 |

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## SUMMARY OF ACTIVE DEVICES

### Section M

Switch Card

## Switchboard 1900 MHz (STLG4009A)

| <u>Device Type</u> | <u>Component Description</u>                   | <u>Operating Frequencies</u> |
|--------------------|------------------------------------------------|------------------------------|
| MMBZ5231BL         | 5.1V Zener Voltage Regulator Diode             | DC                           |
| MMBT3904           | NPN Transist                                   | DC                           |
| MC33161            | Universal Voltage Monitor                      | DC                           |
| MC33063            | Switching Regulator                            | 40 kHz                       |
| MMDF2P02HD         | P-Channel MOSFET                               | 40 kHz                       |
| MBRS340T3          | Schottky Power Rectifier (1A)                  | 40 kHz                       |
| MIC2920A-5.0BS     | Low-Dropout Voltage Regulator (0.4A)           | DC                           |
| MIC2940A           | Low-Dropout Voltage Regulator (1.25A)          | DC                           |
| MIC5205-3.3BM5     | Low-Dropout Voltage Regulator (150mA)          | DC                           |
| MIC2941ABU         | Low-Dropout Variable Voltage Regulator (200mA) | DC                           |
| MBR0530T1          | Schottky Power Rectifier (0.5A)                | DC                           |
| 74LCX244           | Low-Voltage CMOS Octal Buffer                  | DC                           |
| MMBD7000           | Dual Switching Diode                           | DC                           |
| pLSI2032           | Programmable Logic Device                      | DC                           |
| 25020              | Serial E <sup>2</sup> PROM                     | 100 kHz                      |
| 74ACT04            | Hex Inverter                                   | DC                           |
| 74ACT00            | Hex NAND Gate                                  | DC                           |
| BRPG1204           | Red-Green LED                                  | DC                           |
| LM2901             | Quad Comparator                                | DC                           |
| HMC182S14          | GaAs SP4T Terminated Switch                    | 1800 - 2000 MHz              |
| SW338              | GaAs SPDT Terminated Switch                    | 1800 - 2000 MHz              |
| HMC183QS24         | GaAs SP8T Terminated Switch                    | 1800 - 2000 MHz              |
| SW419              | GaAs SP4T Terminated Switch                    | 1800 - 2000 MHz              |
| SNA-486            | GaAs FET MMIC (100mA) RF Amplifier             | 1900 - 2000 MHz              |

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# SUMMARY OF ACTIVE DEVICES

## Section N

HSO – High Stability Oscillator

# High Stability Oscillator (HSO)

| <u>Device Type</u> | <u>Component Description</u> | <u>Operating Frequencies</u>                                            |
|--------------------|------------------------------|-------------------------------------------------------------------------|
| SN74AC240DW        | LINE DRIVER                  | 1 HZ                                                                    |
| X2502OS            | EEPROM                       | 9.6 kHz                                                                 |
| DS3695AM           | RS485 DRIVER                 | 1 HZ                                                                    |
| FE5680A            | Rb MODULE                    | 500 HZ<br>8.388608 MHz<br>38 MHz<br>50.255 MHz<br>100.51 MHz<br>6.8 GHZ |