
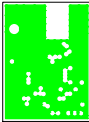





REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE EON-154-2015	8/5/15
1.1	EON-169-2015	8/19/15
3.0	EON-222-2015	12/11/15
4.0	EON-165-2015	05/25/16

		<small>WAB NEED COMMERCE COURT OSKARDENBURG, THE BONES PROVIDE 2015-2016-2017</small>	
DESIGN CREATE CERTIFY CONNECT			
DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER, LAYER 1, TOP	
CHECKED BY: BRIAN PETTED	DATE: 08/05/2015	PROJECT: Sterling-LWB Module	
APPROVED BY: JMB	DATE: 08/05/2015	SIZE: A	DRAWING NO: 750-00740
		REV: 4.0	
FILENAME:		SCALE: 1 TO 1	SHEET: OF

INNER LAYER 2, GROUND




REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE EON-154-2015	8/5/15
1.1	EON-169-2015	8/19/15
3.0	EON-222-2015	12/11/15
4.0	EON-165-2015	02/25/16

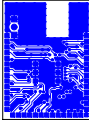
		<small>WAB NEED COMMERCE COURT OSKARDENBURG, THE BATES PROJECT 2015-2016</small>	
DESIGN CREATE CERTIFY CONNECT			
DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER, LAYER 2	
CHECKED BY: BRIAN PETTED	DATE: 08/05/2015	PROJECT: Sterling-LWB Module	
APPROVED BY: JMB	DATE: 08/05/2015	SIZE: A	DRAWING NO: 750-00740
FILENAME:		SCALE: 1 TO 1	SHEET: OF
			REV: 4.0



REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE EON-154-2015	8/5/15
1.1	EON-169-2015	8/19/15
3.0	EON-222-2015	12/11/15
4.0	EON-165-2015	02/25/16

		<small>WAB NEED COMMERCE COURT OSKARDENBURG, THE BONES PROVIDED 2015-05-10-1000</small>	
DESIGN CREATE CERTIFY CONNECT			
DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER, LAYER 3	
CHECKED BY: BRIAN PETTED	DATE: 08/05/2015	PROJECT: Sterling-LWB Module	
APPROVED BY: JMB	DATE: 08/05/2015	SIZE: A	DRAWING NO: 750-00740
FILENAME:		SCALE: 1 TO 1	REV: 4.0
		SHEET:	OF

BOTTOM LAYER



REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE ECU-154-2015	8/5/15
1.1	ECU-169-2015	8/19/15
3.0	ECU-222-2015	12/11/15
4.0	ECU-165-2015	02/25/16



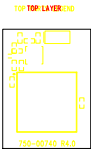
DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER, LAYER 4, BOTTOM
CHECKED BY: BRIAN PETTED	DATE: 08/05/2015	PROJECT: Sterling-LWB Module
APPROVED BY: JMB	DATE: 08/05/2015	SIZE: A
DRAWING NO: 750-00740		REV: 4.0
FILENAME:		SCALE: 1 TO 1
		SHEET: OF

REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE EON-154-2015	8/5/15
1.1	EON-169-2015	8/19/15
3.0	EON-222-2015	12/11/15
4.0	EON-160-2015	02/25/16

- TOP SIDE ASSEMBLY NOTES
1. THE FOLLOWING COMPONENTS CAN BE POPULATED IN EITHER ORIENTATION:
ALL R_s L_s AND NON-POLARIZED C_s
ESD DIODE D1
 2. WATCH FOR POLARITY OR ORIENTATION MARKINGS ON THE FOLLOWING COMPONENTS:
MODULE M1
CHIP ANTENNA ANT1
 3. COMPONENTS R1 AND R3 SHARE A PAD, POPULATE ONLY ONE OR THE OTHER BASED ON BOM.



REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE EON-154-2015	8/5/15
1.1	EON-169-2015	8/19/15
3.0	EON-222-2015	12/11/15
4.0	EON-165-2015	02/25/16



DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER, LAYER 1, TOP
CHECKED BY: BRIAN PETTED	DATE: 08/05/2015	PROJECT: Sterling-LWB Module
APPROVED BY: JMB	DATE: 08/05/2015	SIZE: A
FILENAME:		DRAWING NO: 750-00740
		REV: 4.0
		SCALE: 1 TO 1
		SHEET: OF

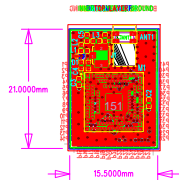
ARTWORK/FABRICATION FILES

TOP - COPPER ROUTING - COPPER1.PHO
LAYER 2 - GROUND PLANE - COPPER2.PHO
LAYER 3 - INNER ROUTING - COPPER3.PHO
BOTTOM - COPPER ROUTING - COPPER4.PHO
TOP SIDE SOLDERMASK - TOPMASK.PHO
BOTTOM SIDE SOLDERMASK - BOTTOMMASK.PHO
TOP SIDE SOLDER PASTE MASK - TOPPASTE.PHO
TOP SIDE PARTS LEGEND - TOPSILK.PHO
TOP SIDE ASSEMBLY - TOPASSEMBLY.PHO
NC DRILL FILE - NCDRILL.DRL

REVISION RECORD		
REV.	DESCRIPTION	DATE
1.0	INITIAL RELEASE ECU-154-2015	8/5/15
1.1	ECN-W9-2015	8/19/15
3.0	ECN-222-2015	12/11/15
4.0	ECN-W6-2016	02/25/16

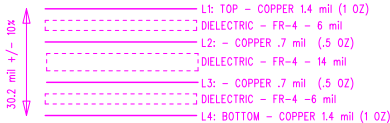
DRILL CHART

- TOP SIDE ASSEMBLY NOTES
- THE FOLLOWING COMPONENTS CAN BE POPULATED IN EITHER ORIENTATION:
ALL R_s L_s AND NON-POLARIZED C_s
ESD DIODE D1
 - WATCH FOR POLARITY OR ORIENTATION MARKINGS ON THE FOLLOWING COMPONENTS:
MODULE U1
CHIP ANTENNA ANT1
 - COMPONENTS R1 AND R3 SHARE A PAD, POPULATE ONLY ONE OR THE OTHER BASED ON BOARD



FABRICATION NOTES:

- BOARD FABRICATION AND QUALITY ACCEPTANCE PER IPC-6012B, CLASS 2. THESE DETAILED NOTES AND INSTRUCTIONS MAY SUPERSEDE IPC REQUIREMENTS.
- ALL BOARD DIMENSIONS IN INCHES. TOLERANCE = +/-0.004" UNLESS NOTED OTHERWISE.
- MATERIAL - FR-4 GRADE GLASS EPOXY, LEAD-FREE COMPLIANT
CTE Z-AXIS EXPANSION <=3.5%, Td >= 320 DEG C, Tg >=150 DEG C.
MINIMUM FLAMMABILITY RATING UL 94V-0
- HOLE WALL PLATING OF 0.7 MILS MINIMUM FOR THROUGH VIAS.
ALL 8 MIL THROUGH VIAS SHALL BE FILLED AND CAPPED PER IPC-4761 TYPE VII.
- FINISH-2uIN MIN IMMERSION GOLD PLATING OVER 120-240uIN ELECTROLESS NICKEL (ENIG).
NO EXPOSED BARE COPPER PERMITTED.
- SOLDER MASK OVER BARE COPPER, LPI, PER IPC-SM-840, REGISTRATION +/-0.003", GREEN.
NO COVERAGE ON SOLDER PADS PERMITTED.
- SILKSCREEN TOP SIDE ONLY WITH WHITE EPOXY NON-CONDUCTIVE INK.
SILKSCREEN SHOULD BE TRIMMED OFF ANY SOLDERED ENTITY.
- HOLE SIZE TOLERANCE = +/- 0.003" UNLESS NOTED OTHERWISE.
- HOLE CENTERS AND PAD CENTERS TO BE CONCENTRIC WITHIN +/- 0.1mm
- COPPER ADDITION (THEIVING, CROSSHATCH, ETC) IS NOT PERMITTED ON ANY LAYERS UNLESS OTHERWISE SPECIFIED. COPPER ADDITION IN BREAKAWAY AREAS FOR PANEL FORMS IS ACCEPTABLE.
- LAMINATION, STACKUP, COPPER PLATING, AND ETCHING TO BE CLOSELY MONITORED TO ENSURE PRODUCT MEETS DESIGN INTENT. NO CHANGES TO MATERIALS AND/OR GERBER FILES ARE PERMITTED WITHOUT WRITTEN APPROVAL.
- UL DATE/LOGO AND/OR VENDOR INFORMATION CAN BE IN SILKSCREEN NOMENCLATURE WHERE SPACE PERMITS, UNLESS OTHERWISE SPECIFIED. NO ADDITIONAL COPPER, LOGOS, OR TEXT OF ANY KIND IN COPPER LAYERS.
- CONTROLLED IMPEDANCE - 10 mil WIDE MICROSTRIP TRACES ON SIGNAL LAYER 1 TO BE 50 OHMS +/- 10% REFERENCED TO LAYER 2 GROUND PLANE, WHEN MEASURED BY A TDR (TIME DOMAIN REFLECTOMETER) IN ACCORDANCE WITH IPC-2221 AND IPC-TM-650, METHOD 2.5.5.7. IMPEDANCE TESTING MAY BE PERFORMED AS PER A C=0 SAMPLING PLAN IN ACCORDANCE WITH IPC 6012B CLASS 2. DIELECTRIC THICKNESS AND/OR TRACE WIDTH MAY BE ADJUSTED TO MEET IMPEDANCE REQUIREMENTS.
- CONTROLLED IMPEDANCE - 8 mil WIDE STRIPLINE TRACES ON SIGNAL LAYER 3 TO BE 50 OHMS +/- 10% REFERENCED TO LAYERS 2 AND 4 GROUND PLANES.



Note: Material dielectric thickness may need to be adjusted to meet total thickness requirement.



DRAWN BY: MIKE HENNING	DATE: 07/15/2015	TITLE: - COPPER LAYER 1 BOTTOM
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FILENAME:	DRAWING NO: 750-00740	REV: 4.0
SCALE: 1 TO 1	SHEET: OF	