Listing Constructional Data Report (CDR)

1.0 Reference and Address			
Report Number	100992401LHD-001	Original Issued: 19-May-2014	Revised: None

Standard(s)	UL 60079-0 Issued: 2013/07/26 Ed: 6 Rev: 2013/07/26 Explosive Atmospheres - Part 0: Equipment - General Requirements. CSA C22.2 # 60079-0 Issued: 2011/12/01 Explosive Atmospheres - Part 0: Equipment - General Requirements UL 60079-7 Issued: 2008/10/15 Ed: 4 Rev: 2013/05/31 Explosive Atmospheres Part 7: Equipment Protection by Increased Safety "E" CSA C22.2 # 60079-7 Issued: 2012/02/01 Explosive Atmospheres - Part 7: Equipment Protection by Increased Safety "E" UL 60079-11 Issued: 2013/02/15 Ed: 6 Explosive Gas Atmospheres - Part 11: Equipment Protection by Intrinsic Safety 'I' CSA C22.2 # 60079-11 Issue: 2011/12/01 Electrical Apparatus for Explosive Gas Atmospheres Part 11: Intrinsic Safety "i" UL 60079-18 Issued: 2012/05/31 Ed: 3 Rev: 2012/10/05 Explosive Atmospheres - Part 18: Equipment Protection by Encapsulation "m" CAN/CSA-C22.2 No. 60079-18:12 Explosive atmospheres - Part 18: Equipment protection by encapsulation “m” ISA 60079-31, Issued: 2009/01/01 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" CAN/CSA-C22.2 No. 60079-31:12 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t” UL 60950-1 Issued: 2007/03/27 Ed: 2 Rev: 2011/12/19 Information Technology Equipment Safety Part 1: General Requirements CSA C22.2 No. 60950-1 Issued: 2007/03/27 Ed: 2 (R2012) Rev:2011/12/19, Standard for Safety for Information Technology Equipment Safety Part 1: General Requirements

Applicant	ISIS-Ex Limited	Manufacturer	**ISIS-Ex Limited**
Address	Unit A & B, Windmill Industrial Estate, Showfield Lane, Malton North Yorkshire YO17 6BT	Address	Unit A & B, Windmill Industrial Estate, Showfield Lane, Malton North Yorkshire YO17 6BT
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2.0 Product Description	
Product	Zone 1 Wireless Access Point, UL: Class 1, Zone 1, AEx e mb ib [ib Gb] IIB T4 Gb -40℃ ≤ Ta ≤ 60℃ Zone 21, AEx tb IIIB T135℃ Db IP66 CSA: Ex e m ib [ib Gb] IIB T4 Gb Class II, III, Div 1 Groups F and G
Brand name	NA
Description	The Zone 1 Wireless access point is a radio network device designed to operate in hazardous atmospheres where explosive gas and dust are present. It is designed for level of protection Gb. The equipment is made of subsystems which are, the power supply unit, Zener barrier, Ethernet barrier, Wi-Fi module, Antenna barrier and the LED driver assembly unit. The equipment utilizes different types of protection concept which are listed below. • Equipment protection by Increased safety 'e':- for enclosure and terminals. • Equipment protection by encapsulation 'm':- for the power supply unit, zener barrier, Wi-Fi module, LED driver assembly, Antenna barrier and the Ethernet barrier. • Equipment dust ignition protection by enclosure t'':- for the enclosure. • Equipment protection by intrinsic safety 'i':- for the RF output, Ethernet output and limiting energy in the exposed LEDs to hazardous atmosphere. Intrinsic safety is assured by limitation of voltage, current and power, encapsulation, limitation of capacitance and inductance, use of thermal fuses, infallible segregation and use of casting compound to exclude explosive gas atmosphere from the all components in the equipment. The Wireless access point enclosure provides a degree of protection of at least IP66 and NEMA 4X.
Models	iSiS 1901
Model Similarity	NA
Ratings	100-240Vac, 0.8A, 50-60Hz
Other Ratings	NA

3.0 Product Photographs

Photo 1 - Front View (External)

3.0 Product Photographs

Photo 2- Warning Label

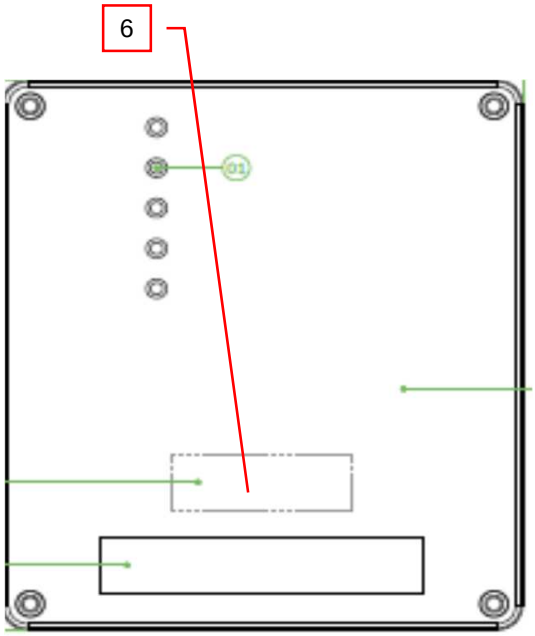
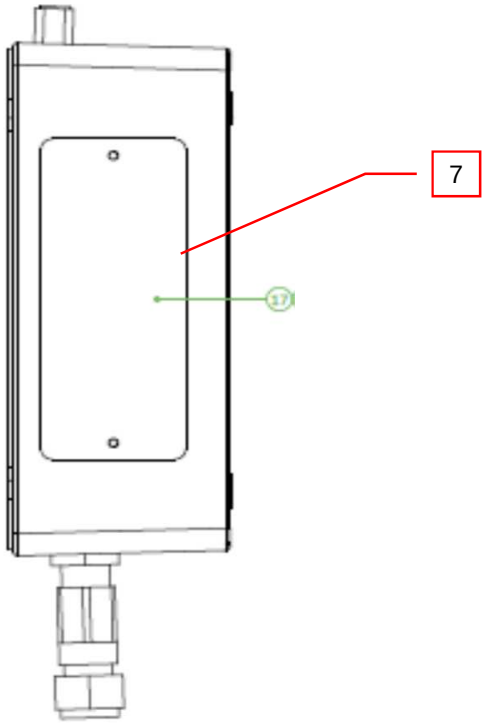


Photo 3- Marking Label

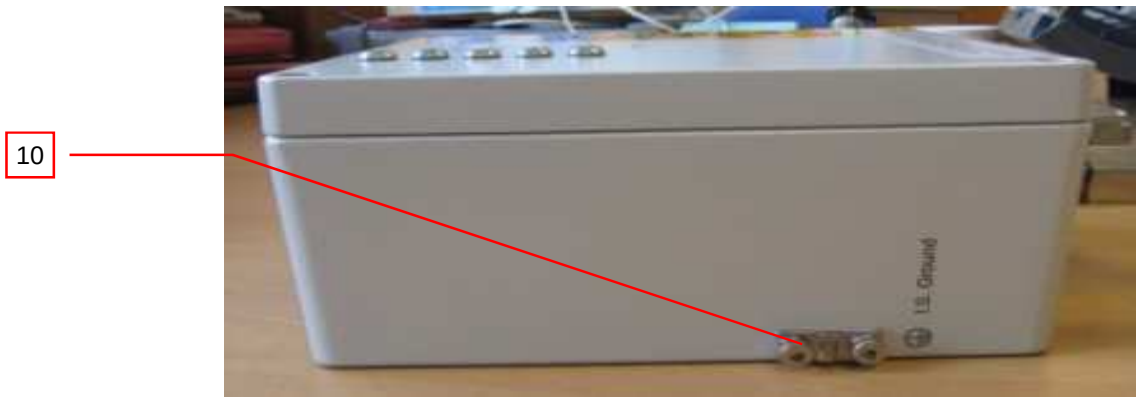


3.0 Product Photographs

Photo 4 - Bottom view (External)

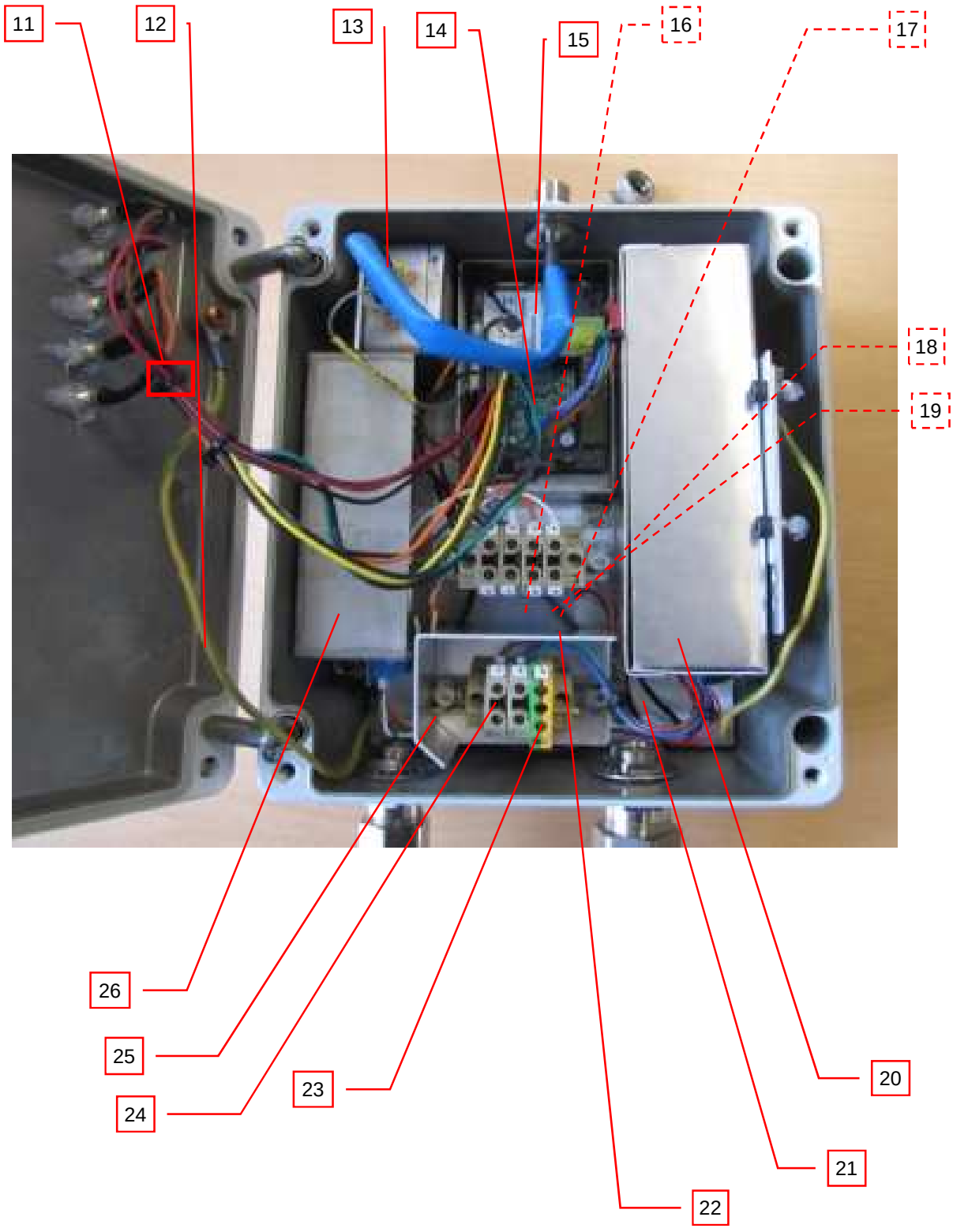
Photo 5 - Top View (External)

Photo 6 - Left side view of enclosure



3.0 Product Photographs

Photo 7 - Internal View of Equipment



3.0 Product Photographs

Photo 8 - LED Driver, item 14

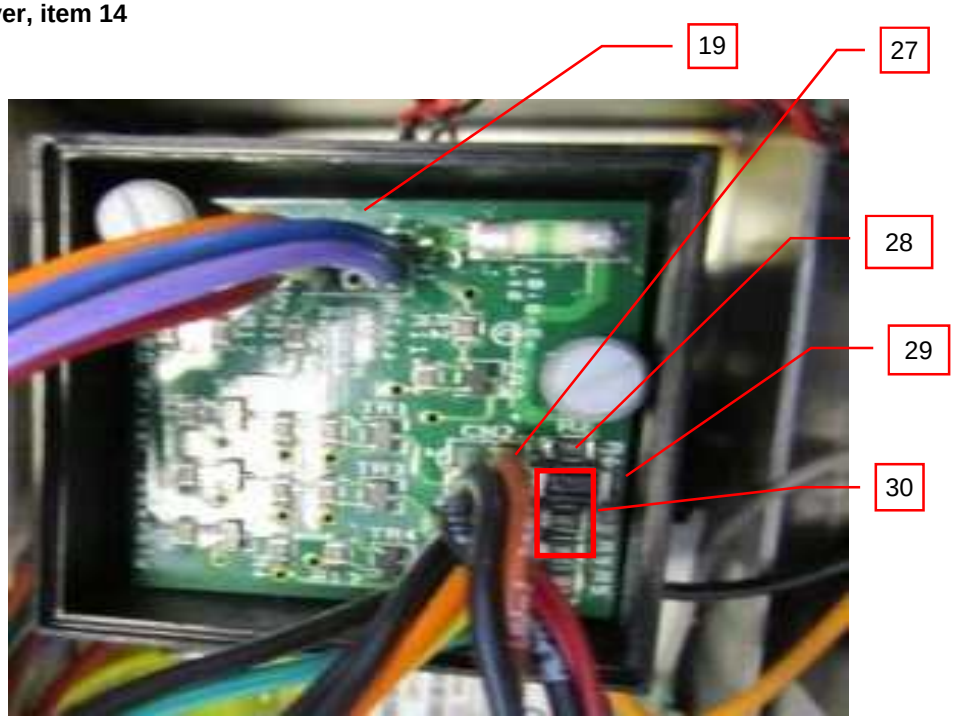
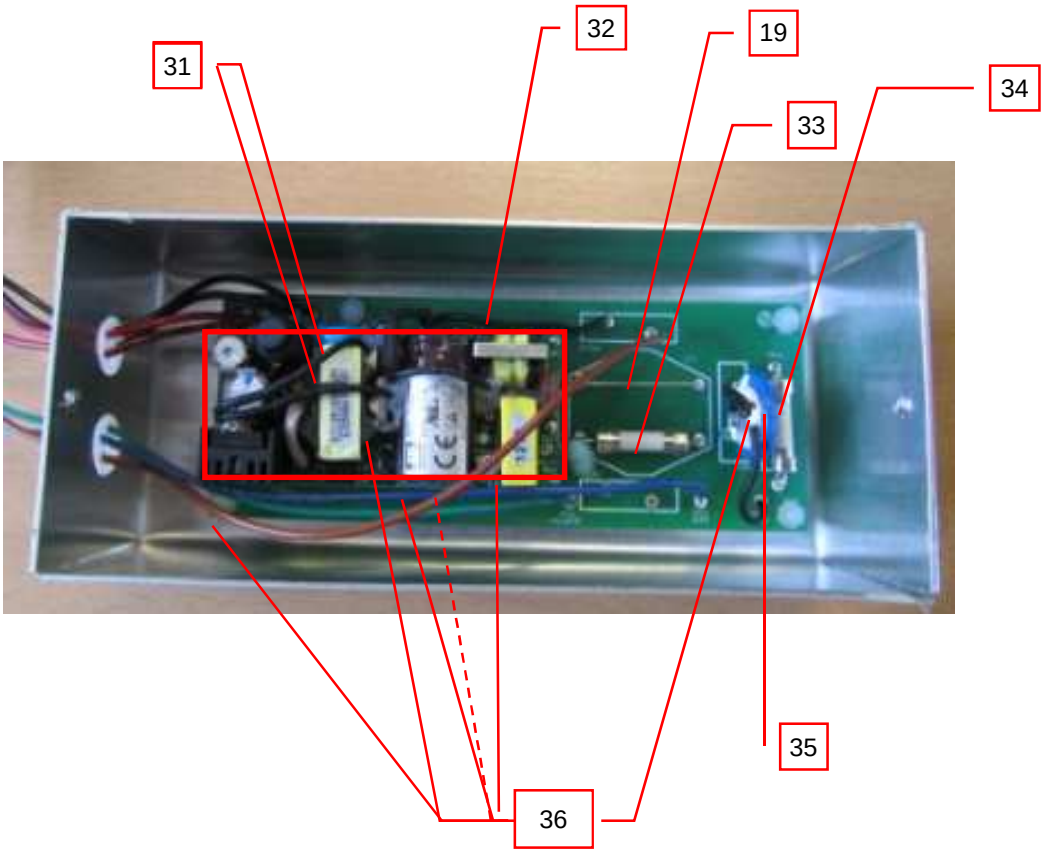


Photo 9 - Unpotted Power supply unit assembly, item 20



3.0 Product Photographs

Photo 10 - Potted Power Supply unit, item 20

NOTES:

1) Callouts with dotted lines means they are within a compartment or are under a component.

4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
1	1	Enclosure	Rose Systemtechnik UL No. E66473	25232011	Diecast Aluminium, Size: 232mm x 202mm x 111mm. Provided with silicone gasket and stainless steel screws.	cULus
1	2	LEDs, 5 provided	MARL	524 series	Ø 8.1mm mounting, Case and Nut: Stainless Steel, Panel Seal: Viton	NR
1	3	Cable Gland	Peppers Cable Glands	E series M20 C series M20S C series M20 A series M20S A series M20 A*LDS series M20S A*LDS series M20	Nickel Plated Brass or Stainless steel. IP66 minimum, NEMA 4X, -60℃ to +180℃ with silicone seals. Exd Exe Extb. Thread size M20 x 74mm total body length (nominal).	CSA
1	4	Cable Gland	Hawke	501/421 series	Nickel Plated Brass or Stainless steel. IP68 and NEMA 4X. -60℃ to 100℃. Exd Exe Extb. Thread size M20 x 40mm total body length (nominal).	CSA
1	5	Warning Label	Sabic UL No. E45329	Lexan 8B35VE	Black, Secured using UL approved Adhesive 3M 8132, -40℃ to +120℃	cURus
2	6	Fuse Warning Label				
3	7	Ex Marking / Rating Label	iSiS-Ex	Stainless Steel 316	Laser engraved, secured using screws	NR
4	8	Ex i connection label	3M COMPANY, UL No. E45329	Lexan 8B35VE	Black, Secured using UL approved Adhesive 3M 8132, -40℃ to +120℃	cURus
5	9	Antenna Connector	Interface Components	180-470-TNG RG58	IP66, 50 ohm, -55℃ to +155℃	NR
6	10	External Earthing connector	Various	Various	Stainless steel saddle clamp, secured using 2 x M6 screws and washer combination.	NR
7	11	Internal Wiring, used throughout	Various	Style 1569 or Style 1007	24AWG min, 300V, 80℃ min, VW-1	UR, CSA
7	12	Internal earth wire	Various	Style 1015	Green/yellow, 16AWG, 600V, 105℃, VW-1	UR, CSA
7	13	Polyolefin heat-shrinkable tubing (Blue)	DSG-CANUSA	CPX-876/PO-135	600V, 125℃ max, VW-1	UR, CSA
7,8	14	LED Driver Module	iSiS-Ex	SA447	Secured using screws. Fully potted with item 37. Contains resistors R5-R9 which limits intrinsically safe current to the LEDs.	NR

4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
7	15	Wi-Fi Module	iSiS-Ex	SA437	Secured using nuts. Fully potted with item 37.	NR
7	16	Zener diodes, ZD1//ZD2	Microsemi	1N4554B	6.2V ± 5%, Junction Temperature: 175℃	NR
7	17	Fuse, F1	Schurter UL No. E41599	SMD-SPT, 0001.2704	5x20mm, T1A, H250V.	cURus
7	18	Thermal Fuse, F2-F4	AUPO UL No. E140847	A0-3A-F	84℃, 3A, 250V	cURus
7, 8, 9	19	PCB material, used throughout	Various	Various	Min 1.6mm thick, CTI ≥ 175, 94V-1 min, 105℃ min	UR
7,9, 10	20	Power Supply Unit (PSU) assembly	iSiS-Ex	SA646	Totally enclosed assembly sized 160 x 64 x 47.5mm and minimum 1.0mm thick, fully potted with item 37. Secured to enclosure via metal plate using hex screw, nut and washer combination.	NR
7	21	Zener barrier earth strap conductor	Various	Various	4mm^2 earth braid, connected from Zener barrier ground to enclosure	NR
7	22	Zener Barrier Assembly	iSiS-Ex	SA462	Uo = 6.51Vmax. Totally enclosed assembly sized 55 x 42 x 27mm and minimum 1.0mm thick, fully potted with item 37.	NR
7	23	PE/Gnd Terminal Block	Conta Connect UL No. E95701.	SL4/15	Coloured green/yellow, sized 22-10AWG	cURus
7	24	Mains Terminal Block, 2 provided	Conta Connect UL No. E95701.	RK1.5-4/15	-40℃ to +105℃, 30A, 300V	cURus
7	25	Metal Terminal Block Guard	iSiS-Ex	500864	1.5mm thick Aluminium	NR
7	26	Ethernet Barrier	iSiS-Ex	IS993	Fully potted with item 37.	ATEX/IEC Ex
8	27	Soldering	None	None	Wiring Insulation must be at least 5mm above the PCB surface.	NR
8	28	Resistors, R6	Various	SMD 2010 package	120 ohm ± 1%, 0.75W	NR
8	29	Resistors, R7	Various	SMD 1206 package	240 ohm ± 5%, 0.5W	NR
8	30	Resistors, R5, R8, R9	Various	SMD 1206 package	220 ohm ± 1%, 0.5W	NR
9	31	Insulation cover for lead thermal fuses	DSG-CANUSA UL No. E63390	CPX-876/PO-135	600V, 125℃ max, VW-1	UR, CSA
9	32	Power Supply, PSU1	XP POWER UL No. E317867	ECL25US05	Input 100-240V, 50-60Hz, 0.8A, output: 5V, 5A.	cURus
9	33	Fuse, FS1	Schurter, UL No: E41599	0001.2509	T3.15A, H250V, 1500A.	cURus

4.0 Critical Components

Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
9	34	Fuse, FS2	Schurter, UL No: E41599	0001.2509	T3.15A, H250V, 1500A.	cURus
9	35	Varistor MOV1	EPCOS UL No. E321126	S20K275	Vrms = 275V. Imax @ 8/20µs = 8000A, -40℃ to +85℃.	UR
9	36	Thermal Fuse, TF1-TF6	AUPO UL No. E140847	A1-3A-F	98℃, 3A, 250V	cURus
10	37	Potting Compound	Sika	Compound SikaForce-7311 L45 GR, with Hardener, SikaForce-7010	Mixed in a ratio of 4 parts compound to 1 part hardener. operating range -50℃ to +120℃	See 5.0

NOTES:

1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.

2) “Various“ means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.

3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

5.0 Critical Unlisted CEC Components

POLYMERIC MATERIALS				
Photo #	Item no.	Name	Manufacturer/Trademark	Type / model
10	37	Potting Compound	Sika	Compound SikaForce-7311 L45 GR, with Hardener, SikaForce-7010
Electrical Rating: N/A				Flame rating N/A
Component Standard used: UL 60950-1:2007 Clause A.2.4, IEC 60695-11-4: Clause 5 and 9				

MATERIALS LIST			
Component	Manufacturer	Type/model	Dimensions/thickness/assembly information
Potting Compound	Sika	SikaForce-7311 L45 GR/SikaForce 7010.	3mm thickness

VERIFICATION PROCESS		
Frequency: **Annual**	Test Site: **CEC**	Number of samples to test: **3**
Test Name	Test Parameters	
Resistance to Fire (Needle Flame test)	12mm Flame at 45℃ against the wall of potting comp ound for 30s. Test repeated twice. Second test to be conducted one minute after the first test was conducted.	

6.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

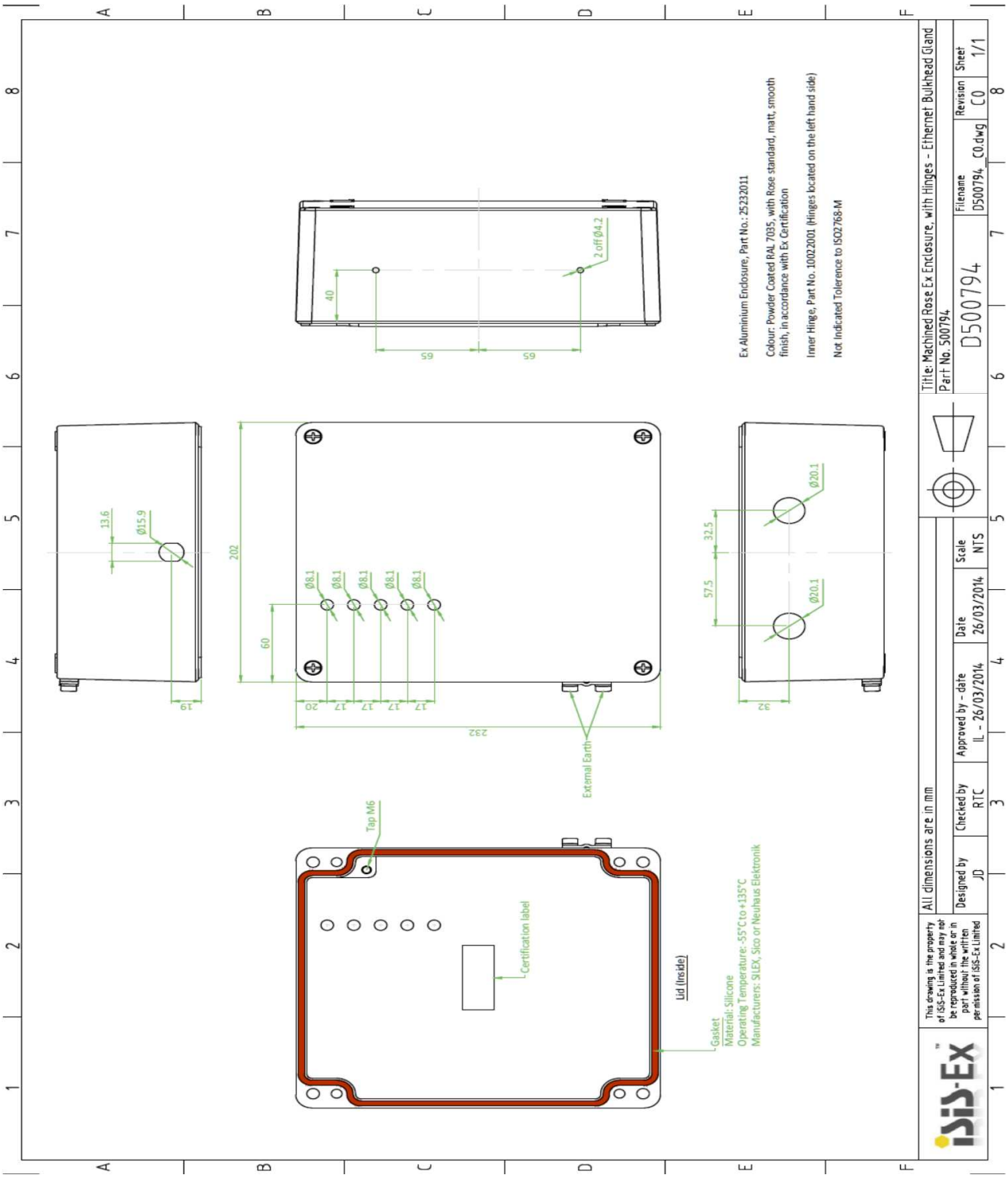
Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - In primary circuits, 0.43 mm minimum spacing are maintained over surfaces of insulating material for the conductor linking the thermal fuses and the conductive parts of the thermal fuses. Minimum thickness of the insulation required is 0.4 mm. Minimum spacings in the intrinsically safe circuits are maintained by design in accordance with Table 5 of UL 60079-11,
2. Mechanical Assembly - Components such as fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a NEMA 4X rated metallic enclosure constructed with no openings.
5. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed are connected to the equipment grounding terminal. The enclosure incorporates an external grounding terminal.
6. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. All wiring is minimum 24AWG, with a minimum rating of 300V, 80℃.
7. Schematics - Refer to Illustration No(s).14 for list of schedule drawings for schematics requiring verification during Field Representative Inspection Audits.
8. Markings - The product is marked on a labelling system as described in item no. 7 of Section 4.0. Refer to illustration No. 2 for details.
9. Cautionary Markings - The following are required: Refer to Illustration No(s). 2 and 3 for cautionary marking in English and French requiring verification during Field Representative Inspection Audits.
10. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer as required by the standard as described in Illustration No(s) 4 to 13 of this report.

7.0 Illustrations

Illustration 1 - General Assembly drawing



7.0 Illustrations

Illustration 2 - Ex Marking Label and Warning Marking

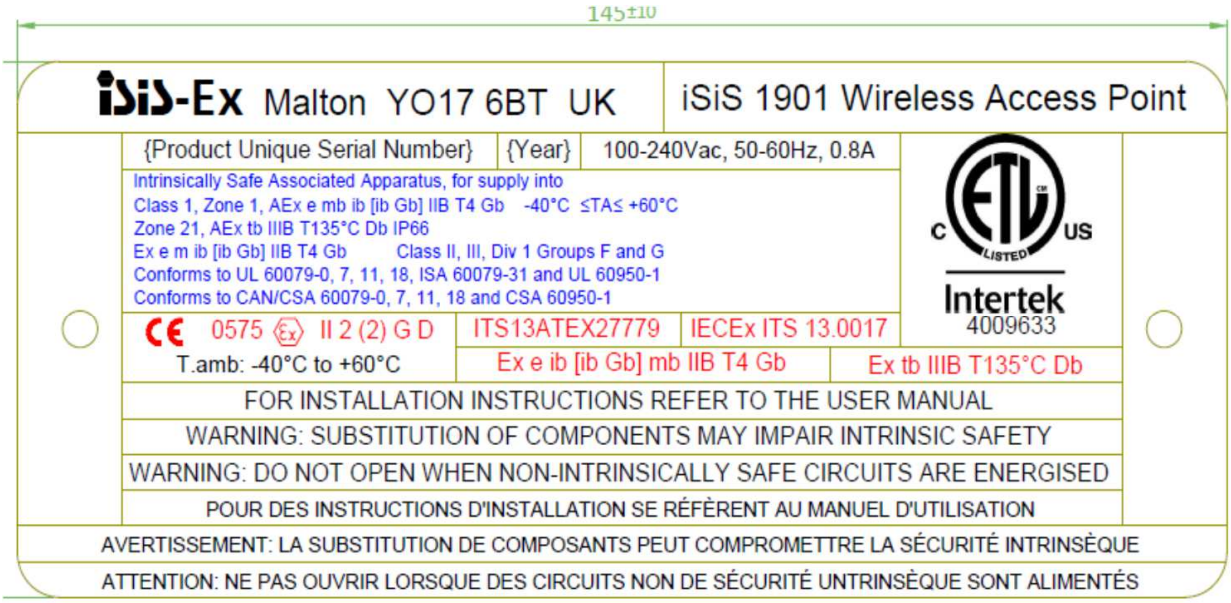
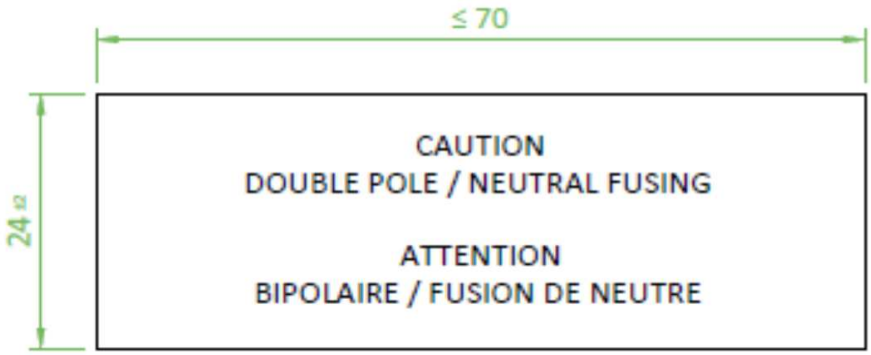


Illustration 3 - Neutral Warning Label



7.0 Illustrations

Illustration 4 - User Manual Front page

iSiS-Ex

Zone 1 Wireless Access Point
iSiS 1901

User Manual

Manual Part Number: 500887 Rev 2.1

7.0 Illustrations

Illustration 5 - Warnings and critical information in user manual

2.1. Warnings

Warnings and cautions are stated in several places in this manual, mainly for the security and safety of the personnel, but also to protect the equipment from damage.
Warnings are also provided in French.

WARNING: DO NOT OPEN WHEN NON-INTRINSICALLY SAFE CIRCUITS ARE ENERGISED.

ATTENTION: NE PAS OUVRIR LORSQUE DES CIRCUITS NON DE SÉCURITÉ UNTRINSÈQUE SONT ALIMENTÉS.

The iSiS 1901 power supply is fused in both live and neutral but these fuse parts are not user replaceable.

CAUTION: DOUBLE POLE/NEUTRAL FUSING

ATTENTION: BIPOLAIRE/FUSION DE NEUTRE

3.4. User Additional Wiring

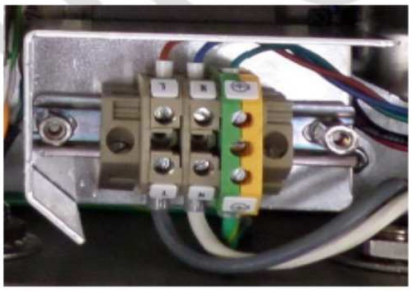
Any wiring and connectors used for external wiring must be UL listed. Additionally any wiring must also conform to the following as a minimum requirement.

The wires must have a cross sectional area of between 0.5 to 2.5mm^2, and be rated to at least 1 Amps. For flexible cords the nominal cross sectional area must be 0.5 to 0.75mm^2. For other cables the nominal cross sectional area must be 1 to 2.5mm^2.

7.0 Illustrations

Illustration 6 - Warnings and critical information in user manual contd.

Terminal block 1
Power



L N E

Illustration 7 - Warnings and critical information in user manual contd.

Maximum transmit output power: 20dBm (100mW).

Illustration 8 - Warnings and critical information in user manual contd.

3.7. Environmental Specifications

Storage Temperature:

-40°C to +60°C.

Operating Temperature:

-40°C to +60°C.

Humidity:

10 to 90 % non-condensing, operating.
0 to 100 % non-operating.

Impact resistance:

> 7 Nm enclosure body (as required by IEC 60079-0)

Ingress Protection Rating:

IP66

NEMA Type Rating:

Type 4X

7.0 Illustrations

Illustration 9 - Warnings and critical information in user manual contd.

4. Installing, Power-up procedure and Uninstalling

4.1. Installing

The iSiS 1901 Wireless Access Point is designed for use in both a Zone 1 and Zone 2 Hazardous Area.

Local power cable and communication cable(s) must be installed according to local Safety Regulations and instructions.

1) Inspect the unit and connectors for visible defects. The unit must be returned for repair if there are any defects or signs of damage that may void its Ex safety.

2) **Connect the external Earth Terminal to a ground point (Earth) with a suitable cable/braid with a minimum cross sectional area of 4mm^2. This connection is essential to maintain intrinsically safe integrity.**
(The Access Point is also earthed via the ground lead present in the power cable).

3) The Access Point is designed to be installed against a wall/partition in a vertical plane.

4) Inspect the power, Ethernet and antenna cables and connectors for damage.

5) Do not connect power to the Access Point before the Ethernet cable and antenna/ antenna cable are connected.

4.2. Power-up Procedure

1. Verify that power is as specified: AC power, 100-240 Vac (50-60 Hz).

2. Ensure all external cables and antenna are connected according to Safety Regulations and local owners' instructions.

3. Power up the unit by connection of the external power supply.

4. The POWER LED will be permanently illuminated. The DIAG LED will be 'on' for approximately 3 seconds whilst the WLAN Tx/Rx and LAN Tx/Rx LEDs will flash indicating data activity. The 100 Base Tx LED will be permanently 'on' if a 100 base Tx Ethernet link is used and connected.

4.3. Uninstalling

1. Disconnect power from the iSiS 1901 Wireless Access Point.

2. Disconnect the power, antenna and Ethernet cables.

3. Disconnect the 'is' Earth Terminal cable/braid.

4. Lift the unit down from the mounting point using an appropriate lifting technique.

7.0 Illustrations

Illustration 10 - Warnings and critical information in user manual contd.

2.2. *'is' Entity Parameters (RF Interface and Ethernet Interface)*

Listed below are the entity parameters for the iSiS 1901 Wireless Access Point Antenna and Ethernet connections.

Parameter	RF Interface
U_o	6.51 V
I_o	1.031 A (at 2.4GHz)
P_o	1.7 W
C_o	500 µF
L_o	133 µH
L_o/R_o	56.4 µH/Ω
C_i	0
L_i	0

Table 1 - Entity Parameters RF Interface

Parameter	10/100 Ethernet TX (output)	10/100 Ethernet RX (input)
U_o	4.515 V	
I_o	1.231 A	
P_o	1.390 W	
C_o	999 µF	
L_o	13.4 µH	
L_o/R_o	51 µH/Ω	
U_i		5.88 V
I_i		1.666 A
P_i		2.44 W
C_i		908 nF
L_i		0

Table 2 - Entity Parameters Ethernet Interface*

Power connector:

Gland as detailed in section 5.7 or CEAG connector as listed below:

ATEX/IECEx rating only
Two pole plus earth, male: CEAG GHG5117306R0001 on an integral screened cable.
UL NEC 505 rating only
Two pole plus earth, male: CEAG GHG5117306L0001 on an integral screened cable.

Ethernet connector:

Glands as per section 5.7 or connector on flying lead as listed below:

Amphenol RJF2PEM2N00, female, on an integral screened cable.

7.0 Illustrations

Illustration 11 - Warnings and critical information in user manual contd.

Any wiring and connectors used for external wiring must be UL listed. Additionally any wiring must also conform to the following as a minimum requirement.

The wires must have a cross sectional area of between 0.5 to 2.5mm^2, and be rated to at least 1 Amps. For flexible cords the nominal cross sectional area must be 0.5 to 0.75mm^2. For other cables the nominal cross sectional area must be 1 to 2.5mm^2.

- Power input via 2 pole plus earth connector and integral cable. Connections are made internally via Terminal Block 1. External cabling used to connect power to the unit must be as follows:

  Live, Neutral minimum 0.5mm^2 and rated to carry a minimum of 1 Amps.
  Earth minimum 1.3mm^2 and rated to carry a minimum of 1 Amps.
  (Note. If using wire with the minimum cross sectional area of 0.5mm^2 then the wire must be less than 2m in length).

Illustration 12 - Warnings and critical information in user manual contd.

Insulation

A power supply cord for connection to the AC mains supply shall comply with all of the following, as appropriate:-

- If rubber insulated, be not lighter than ordinary tough rubber-sheathed flexible cord according to IEC 60245.
- If PVC insulated, for equipment provided with a non-detachable power supply cord and having a mass exceeding 3kg, be not lighter than ordinary PVC sheathed flexible cord according to IEC 60227.
- Include, for equipment required to have protective earthing, a PROTECTIVE EARTHING CONDUCTOR having green and yellow insulation.

7.0 Illustrations

Illustration 13 - Warnings and critical information in user manual contd.

4.4. iSiS 1901 Mounting Details

There are 4 mounting points on the iSiS 1901. Each mounting position is located in one of the 4 corners on the underside of the enclosure. To insert fixings to the mounting points of the iSiS 1901 the enclosure lid must be opened and the hinge assemblies must be removed and then re-fitted. Recommended fixings are listed below:

- 4 x Stainless Steel Spring Washer M4 (iSiS-Ex part number 452121)
- 4 x Stainless Steel A2 M6 x 30mm Hex Socket Cap Screw* (iSiS-Ex part number 452457)

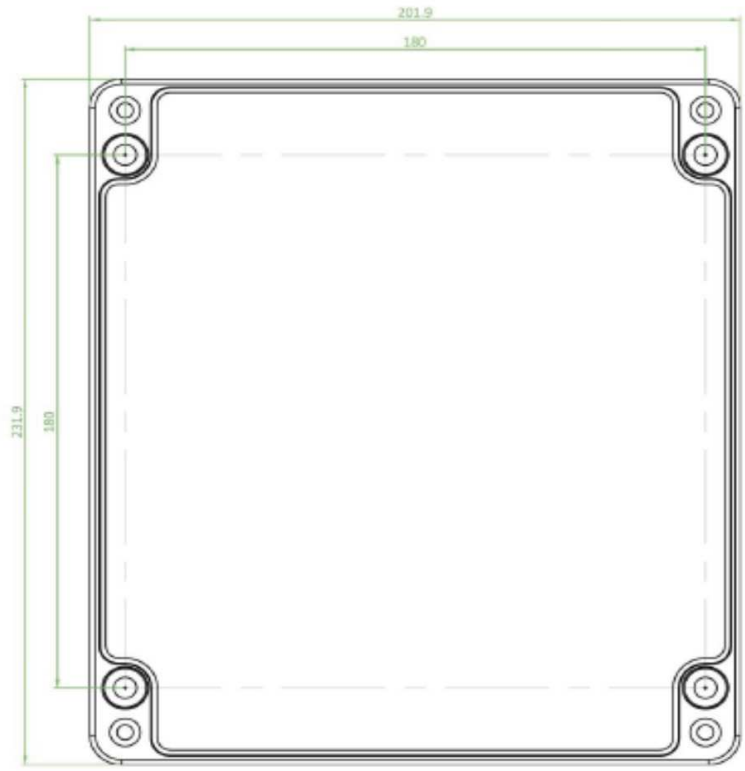


Figure 3 - iSiS 1901 Mounting Outline

*Socket cap screws must be used because the head size of a standard screw fixing is too big.

7.0 Illustrations

Illustration 14 - Manufacturer 's Documents

Title:	Drawing No.:	Rev. Level:	Date:
GA & Parts List for iSiS 1901 Zone 1	D100078	A0	04/04/2014
Rose Ex d Enclosure Label Fixing	D100163	A0	12/05/2014
PSU assembly	SA392	C	18/02/2014
Machined Rose Ex Enclosure with Hinges	D500794	C0	26/03/2014
IS752 Wi-Fi Antenna Barrier Circuit	D500004	A	01/10/2012
WAP zener barrier circuit diagram	IS943CCT	A	12/06/2012
LED Driver PCB part list (2 Sheets)	SA447	B	14/02/2013
WAP zener barrier part list	SA462	A	13/02/2013
Wi-Fi Antenna Barrier	IS752	A	28/01/2013
IS752 Wi-Fi Antenna Barrier	IS752SUB	A	28/01/2013
WAP Fuse Board	SA348	A	14/02/2013
LED driver assembly	SA447C	C	27/03/2013

8.0 Test Summary					
Evaluation Period	29/01/13 - 10/04/14			Project No.	G100992401
Sample Rec. Date	30-Jan-2013	Condition	Prototype	Sample ID.	Prototype
Test Location	Intertek House, Cleve Road, Leatherhead, Surrey, KT22 7SB				
Test Procedure	Testing Lab				

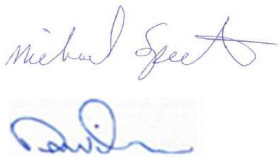
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following tests were performed:

Test Description	UL 60079-0: CSA 60079-0: Clause	UL 60079-7: CSA 60079-7: Clause	UL 60079-11: CSA 60079-11: Clause
Resistance to impact	26.4.2	-	-
Degree of protection (IP) by enclosures	26.4.5	4.9	-
Thermal tests	26.5	-	-
Thermal endurance to heat	26.8	-	-
Thermal endurance to cold	26.9	-	-
Dielectric strength test	-	6.1	10.3
Separation of conductive parts	-	-	6.3
Determination of parameters of loosely specified components	-	-	10.4
Assessment of intrinsically safe circuits	-	-	Annex A
Test Description	UL 60079-18: CSA 60079-18: Clause	ISA 60079-31 CSA 60079-31: Clause	ANSI/UL 60950-1 CSA 60950-1 Clause
Test for resistance to heat and fire	-	-	A.2
Solid insulation distance	-	-	2.10.5
Dielectric strength test	8.2.4	-	5.2
Voltage surge test	-	-	7.4.2
Thermal endurance to heat	8.2.3.1	-	-
Thermal endurance to cold	8.2.3.2	-	-
Maximum temperature test	8.2.2	6.1.2	4.5
Degree of protection (IP) by enclosures	-	6.1.1.4	-
Steady force test, 250 N	-	-	4.2.4
Dielectric strength test on compound	8.1.2	-	-
Resistance to impact	-	6.1.1.2	-
Pressure test	-	6.1.1.3	-

8.1 Signatures

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.

Completed by:	U K Onyechi	Reviewed by:	Michael Spector/ Paul A Wilson
Title:	Test Engineer	Title:	Senior Staff Engineer/ Assistant Chief Engineer-ETL
Signature:		Signature:	

9.0 Correlation Page For Multiple Listings	
The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.	
BASIC LISTEE	ISIS-Ex Limited
Address	Unit A & B, Windmill Industrial Estate, Showfield Lane, Malton North Yorkshire YO17 6BT
Country	UNITED KINGDOM
Product	Zone 1 Wireless Access Point, UL: Class 1, Zone 1, AEx e mb ib [ib Gb] IIB T4 Gb -40℃ ≤ Ta ≤ 60℃ Zone 21, AEx tb IIIB T135℃ Db IP66 CSA: Ex e m ib [ib Gb] IIB T4 Gb Class II, III, Div 1 Groups F and G

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
3) a control number issue by Intertek
4) a product descriptor that identifies the standards used for certification. Example:

For US standards, the words, “Conforms to” shall appear with the standard number along with the word, “Standard” or “Std.” Example: “Conforms to ANSI/UL Std. XX.”

For Canadian standards, the words “Certified to CAN/CSA Standard CXX No. XX.” shall be used, or abbreviated, “Cert. to CAN/CSA Std. CXX No. XX.”

Can be used together when both standards are used.

Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use. The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to:
Intertek Testing & Certification Ltd.
ETL Component Evaluation Center
Intertek House, Cleeve Road
Leatherhead, Surrey, KT22 7SB, United Kingdom
Attn: Rob Bearpark
Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Test

Dielectric Voltage Withstand Test

11.1 Dielectric Voltage Withstand Test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.
The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.
If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:
1 - a voltmeter in the primary circuit;
2 - a selector switch marked to indicate the test potential; or
3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.
In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

Product	Test Voltage	Test Time
All products covered by this Report. Between the mains terminals and body (Earth) of enclosure	1520 V r.m.s or 2128 Vd.c or 1800 V r.m.s or 2520Vd.c	60 s 100 ms
All products covered by this Report. On isolated circuit (low voltage circuit)	500 V r.m.s or 700Vd.c or 600 V r.m.s or 840Vd.c	60 s 100 ms

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
				None