



IntelliHeat product ranges - efficiency features and benefits

Summary

This report looks to present the numerous efficiency features which have been developed over the course of the last decade, and which have culminated in the recent launch of the new IntelliHeat I-Sense range.

Key to this development has been a continuous drive to deliver a more efficient form of electric direct heat transfer system which stands out from all other forms of direct heat transfer, including panel heaters, convection heaters, oil filled radiators, radiant heat panels and alternative forms of thermodynamic radiators which have recently appeared on the UK market.

These forms of heating system already receive an improved SAP rating as compared to night storage heaters:

“It is important to emphasise that all electrical heating is treated as having an efficiency of 100%. It is the ‘Responsiveness (R)’ which changes based on heater type – all electrical direct acting systems have a responsiveness of 1.0, whilst storage types have a responsiveness of between 0.5 and 0.75 – therefore, there is clearly a benefit awarded to direct acting system in terms of energy use that is already reflected in SAP.”

The goal of this report is to prompt a review of the SAP classifications for the IntelliHeat advanced energy regulated thermofluid product range (AERT). To justify this request, we will attempt to substantiate the unique solution that our systems offer through:

- Analysing the numerous efficiency features that combine to produce the product range
- Emphasising the demonstrable energy savings that are being achieved by customers the length and breadth of the UK through the use of the IntelliHeat system.
- Reviewing current international accreditations for the product range, legislative compliance standards, and industry awards.

Our aim is to both ensure correct recognition for a unique and highly efficient system, but also to offer a real alternative to electric storage heater replacement schemes that are currently in place.

Indeed providing the basis for an informed discussion on how best to help consumers reduce their energy consumption, which in turn helps to eliminate fuel poverty, and by definition reduce carbon emissions, and moving away from the UK’s traditional reliance on the inefficient and outdated storage heater technology which, due to the financial power of large manufacturers in the UK, still dominates the electric heating market.

Current options for electric heating (not including air source and ground source heat pump) ranges

Current SAP guidelines for Electric systems recognise only a limited number of electric heating systems which provide standardised scoring depending on the category, and the responsiveness of the product

Current “standard” electric systems are

- Panel, Convector or Radiant heater
- Water or Oil Filled radiator
- Fan Heaters
- Portable Electric Heaters
- Storage heater.
-

Current SAP guidelines assume that all heating systems provide idealised space heating in accordance with the service delivery pattern shown in Figure 2 and Figure 3. The reported energy savings of electrical heating systems using unconventional heat transfer methods, such as infra-red, relate to improved thermal comfort and purported reductions in room temperature as a result.

Any savings resulting from reported improvements in thermal comfort cannot be recognised within SAP because of its inherent ambiguity, a lack of robust data, and the principals of SAP which provides a clear service delivery profile.

It is also important to emphasise that all electrical heating is treated as having an efficiency of 100% (except for heat pumps), see Figure 4. It is the ‘Responsiveness (R)’ which changes based on heater type – all electrical direct acting systems have a responsiveness of 1.0, whilst storage types have a responsiveness of between 0.5 and 0.75 – therefore, there is clearly a benefit awarded to direct acting system in terms of energy use that is already reflected in SAP.

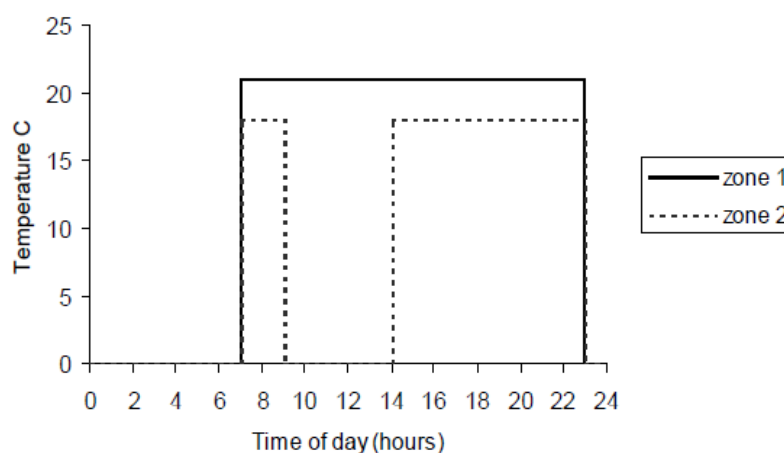


Figure 3 – Weekend heating pattern

Table 4a: Heating systems (space and water)

1. The table shows space heating efficiency. The same efficiency applies for water heating when hot water is supplied from a boiler system.
2. For independent water heaters see section at the end of table.
3. 'Responsiveness (R)' is used to calculate mean internal temperature (Table 9b).
4. Systems marked "rd" in the right-hand column are part of the reduced data set (see S10 in Appendix S)
5. Heating systems, heating controls and fuels are assigned a code number for identification purposes

	Efficiency %	Heating type	Responsiveness (R)	Code	Rd SAP
Electric (direct acting) room heaters:					
Panel, convector or radiant heaters	100	1	1.0	691	rd
Water- or oil-filled radiators	100	1	1.0	694	rd
Fan heaters	100	1	1.0	692	
Portable electric heaters	100	1	1.0	693	rd

Figure 4 – Table 4a excerpt from SAP specification

Requirement for additional categorisation

Effectively the above categorisation therefore assumes that amongst panel heaters, convection heaters, oil filled radiators and all other non-storage heater electric heating system, the technology and efficiency in terms of energy consumption will be identical, hence the identical ratings.

This is of course far removed from the reality, and a core driver for the report at hand. In terms of comparison, this is similar to identifying all 4 wheel drive cars as having exactly the same fuel consumption. Indeed, they do form a category, but within that category the huge range of different technologies, components, and indeed accreditations mean that consumption will be completely different between for example an Intellheat Cali or Neeo range advanced energy regulated thermofluid (AERT) product, or a simple oil filled radiator with no energy regulation, no thermofluid fill, no presence and temperature sensors, and no built-in hyper sensitive temperature gauges.

As it will be explained in full detail within the accreditation section of this report, these differences are already clearly recognised in other countries who's accreditation bodies have had the opportunity to study such systems in greater detail over the past 20 years.

This is especially true for the French market where the absence of natural gas associated to a large investment in nuclear power generation led to a much greater focus on all electric heating systems. Furthermore, as the storage heater never became prevalent on the French market, the industry developed a much greater range of electric radiator systems which led to a tighter accreditation system (The NF rating), but one that took account of a wider variety of technological innovations.

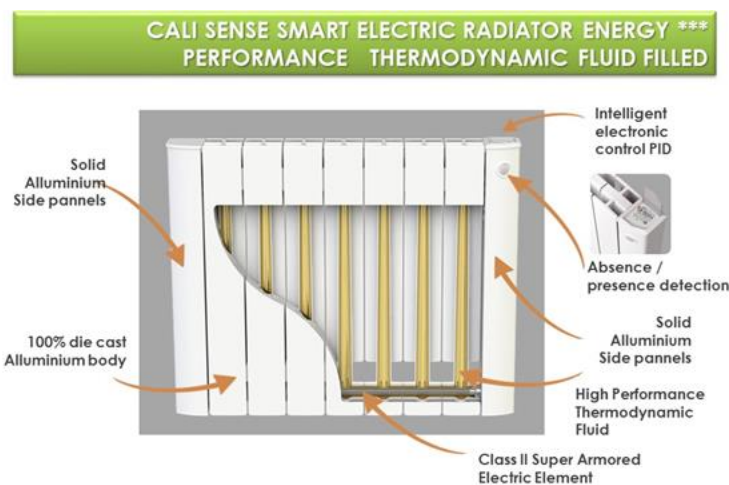
Through the recognition of existing NF accreditations with full audit documentation to support these existing ratings the SAP system could simply add additional criteria for electric ranges for the Intellheat advanced energy regulated thermofluid product range (AERT) which would take into account the efficiency benefits of such systems over a simple panel heater.

The Differentiators - Technology and demonstrable effects

The technology within every IntelliHeat radiator

Since our inception our aim has always been to maximize energy efficiency to both reduce fuel costs and deliver a more environmentally friendly heating solution, our products are unique on the UK market, manufactured and tested to the highest standards.

Every heater is designed to deliver efficiency, control and comfort through a unique combination of interdependent, highly accurate temperature control, energy consumption regulating and heat distribution features.



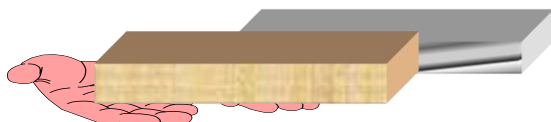
Physical design Features:

All our ranges are designed according to strict specifications; indeed, the units are extremely elegant but this is not the main function of our designs, in fact the structure of every radiator is calculated to deliver maximum levels of heat radiation and deliver natural convection within the allocated heating space, ensuring that the heat is transferred in the most efficient and comfortable way directly to the occupants of the room to provide the perfect heat distribution.

Every unit is built of high grade aluminium to maximise conductivity and filled with our patented thermodynamic fluid which has been tested in controlled environments to deliver optimal heat transference.

High grade aluminium body

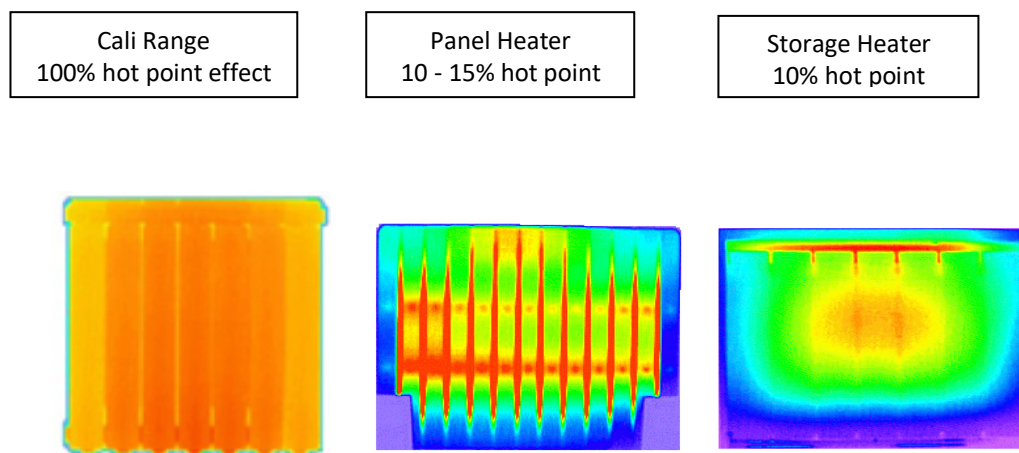
Material	Thermal conductivity (cal/sec)/(cm ² C/cm)	Thermal conductivity (W/m K)*
Aluminum	0.50	205.0
Steel	...	50.2



Thermal fluid filling

IntelliHeat products are filled with a thermodynamic fluid especially designed for IntelliHeat, favours optimum circulation and quickly diffuses heat on all the exchange surface of the radiator. Its components also contribute to the permanent 100% “hot point” effect.

Thermal Imagery of the Cali range demonstrates a similar full hot point effect over the entire surface of the radiator:



Energy regulation design features

Every IntelliHeat radiator is further equipped with an advanced Tungsten heating element which rapidly absorbs energy to heat up within seconds and then slowly release the energy into the fluid to deliver heat with minimal energy consumption.

Effectively each design feature complements one another to deliver perfect thermal conductivity which ensures minimal energy consumption for maximum user comfort.

These design features further work in perfect harmony with the beating heart and brain of the heating unit. The built in Triac energy regulator which calculates exact energy draw requirements to maintain a constant temperature, and the internal IntelliHeat smart thermostat which is accurate to within 0.1°

These three components remain in constant communication to ensure maximum efficiency and comfort at every moment.

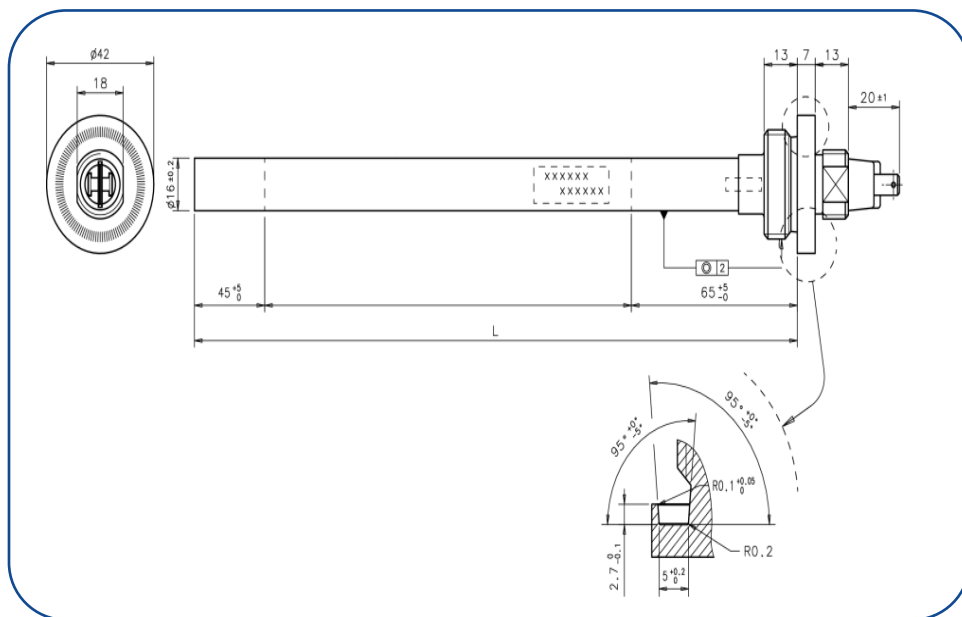
Advanced Heating element:

Every Intelliheat radiator is equipped high an advanced high quality tungstein heating element which charges rapidly and slowly releases energy into the fluid even after power supply has been

interrupted. This enables the radiators to continue heating the room on a slow release for up-to an hour after the TRIAC has stopped all power draw. The key benefit to this feature is that it enables the radiator to maintain a stable ambient room temperature once the target temperature has been met without continuing power draw.

Due to the element's slow release of power and the fluid's heat retention qualities, the radiator will continue emitting heat. For example, if a 1000w radiator has dropped below the desired temperature and the radiator has sensed that only 250w are required to return it to the desired level, then the radiator only draws 250w and not 1000w.

As such the IntelliHeat AERT system works as a gradual energy draw and release system which when combined to the ultra-accurate thermostat and TRIAC energy regulator provides a highly efficient and highly effective direct heat transfer heating system.



« Fast-on » Ultra Safety Connection

Double built-in over-temperature safety fuses

External double clothing sized and optimized for a perfect safety seal

Double insulated- classe 2 Super Armored Heating Element

Extreme high temperatures O'ring FKM Viton Seal. Leak FREE.



TRIAC Energy regulator

When operational, the radiator will draw full power until the required temperature (set on the thermostat) is achieved. This is normally within 15 minutes. At this point, the radiator will cease drawing power. The Thermo-Dynamic fluid will have rapidly expanded, and the radiator will now have 100% hot point effect.

Due to the element's slow release of power and the fluid's heat retention qualities, the radiator will continue emitting heat.

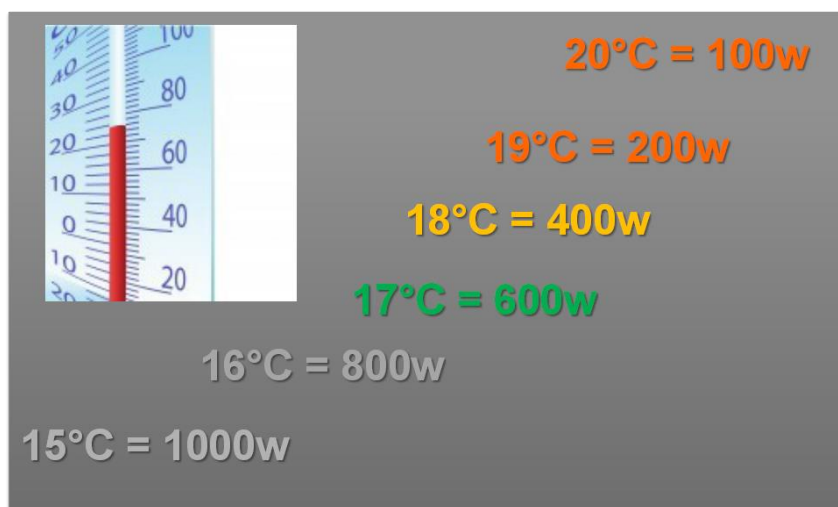
Subsequently, by being able to detect the room temperature to within 0.1° and also detect the exact radiator temperature, the TRIAC energy regulator is able to draw on a unique algorithm to forecast the exact energy draw requirement to generate the correct amount of heat within the room. This ensures both a stable and comfortable heating experience for the user, and the most efficient power consumption pattern, as the unique accuracy of the IntelliHeat thermostats which are accurate to within 0.1° prevents the wide variations in room temperature.

Other electric systems which estimate room temperature to within 2° which means a target of 21° will be oscillating between 19° and 23°.

Of course, this is a vast improvement on most storage heater systems where there is virtually no temperature control as the energy charge taken on overnight is simply released back in to the room over the subsequent non-charge period, giving a high temperature first thing in the morning when the system is fully charged, and virtually no heat at all by evening time when the charge is spent.

The TRIAC system, as demonstrated through the BISRIA tests completed with the first generation Kalirel systems ensures that, when a 1000w radiator is installed in a room that has been calculated to require a heat load of 1000w, if switched on for 8 hours to maintain a room temperature of 21 degrees, it will only use approx. 3 hours of electricity as it will only be drawing a small amount of energy on a regular basis to maintain the rooms temperature, rather than allowing the temperature to drop and then to come back on at full power to push the temperature back up over the mark.

How the TRIAC Energy regulator algorithm works

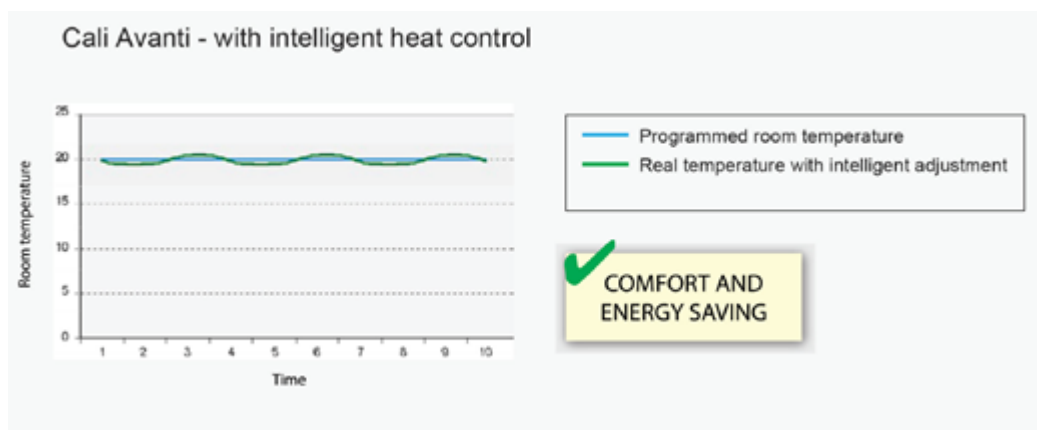


The above illustrates the energy draw of a 1000W IntelliHeat AERT radiator installed in a room with a target temperature of 21°, starting the heat cycle at an ambient temperature of 15°.

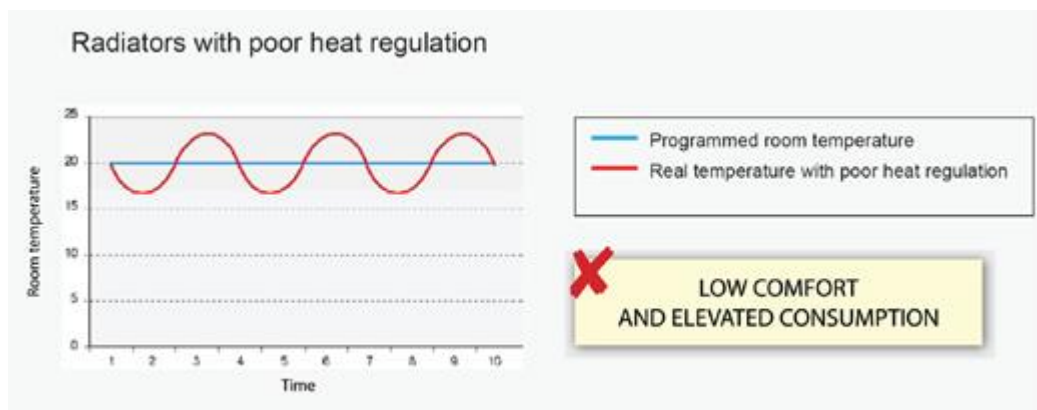
- Initial start, full power up at 15°
- Once 16° is sensed in the room the TRIAC begins to slow energy draw to 800W
- 17° then sees energy draw drop to 600W
- 18° to 400W
- At 19° the target temperature will soon be achieved so the TRIAC reduces to a stabilisation load of 200W
- At 20° the TRIAC will reduce energy draw to only 100W, enough to maintain the heat cycle and achieve the 21° target ambient temperature but without wasting energy and without surpassing the target.

IntelliHeat smart thermostat:

All IntelliHeat systems are equipped with a dual-thermostats temperature measuring system. This means that the heaters measure both the room and the radiator temperature on a continual basis, and as explained in regard to the TRIAC algorithm functionality, the radiators are therefore able to draw the exact energy load required to generate and release the exact heat load needed for the room in question to meet the assigned temperature.



Thermostat accurate to within 0.1° therefore very minor temperature oscillation
Alternative Direct Heat system accurate to within 2° causing large peaks



Zoning

Each IntelliHeat electric radiator works independently, providing the right amount of heat for each room.

By creating energy-efficient heating zones easily and cost-effectively, through wirelessly transmitting the desired time/temperature settings directly to individual radiators.

The zoning options allow grouping by rooms or floors with ease, creating a comfortable environment in each room with the correct heat plan for each area.

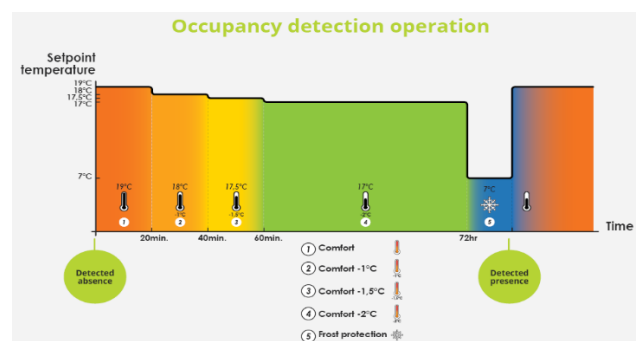
The efficiency of a heating system is greatly increased by dividing the home into distinct heating zones covering different heating needs. In most cases there is no need to heat bedrooms during the day, when they are not in use, or to run the whole system at the same temperature.

The principal of zoning further mitigates energy wastage, by programming the heating system to heat each area at the correct times we negate the wastage that a centrally controlled heating system produces. Indeed, the master bedroom for instance will generally only need heating first thing in the morning and last thing in the evening, whereas the lounge area will need heating in between those times.

With the IntelliHeat AERT heating system the user can program each zone independently to follow specific heating programmes which can be simply overridden with the click of a button whenever our lives fluctuate and our heating needs with them!



Self-learning Thermostat





Wide angle motion sensor

The latest generation IntelliHeat systems are further equipped with motion sensors which can override the heating programmes where the room remain unoccupied for a pre-set duration. This is especially useful in guest bedrooms for instance, where a pre-set programme can be applied, the programme will be overridden when no movement is sensed in the area for a determined period, and the radiators will automatically revert to background mode. (background mode is a variable temperature setting usually at around 16°).

International and UK accreditation's and legislative compliance

The IntelliHeat system is already recognised as the ultimate in terms of efficiency within other leading EU accreditation areas. In France where, electric heating has been at the forefront of the heating industry for the past 40 years due to a lack of natural gas, the IntelliHeat Cali range has been audited by Bureau Veritas, and achieved the highest efficiency rating available on the French market for heating products, ie: the NF Performance 3* + rating:



NF Performance certification, what does it entail and what does it mean:

The aim of the NF Mark is to certify the compliance of products with French, European and International standards.

The NF mark meets the requirements of the Consumer Code, in particular by associating the Parts interested in the validation of the certification referential, by defining rules of marking of the certified products and a clear and transparent communication on the main certified characteristics.

The right of user of the NF mark is granted on the basis of an evaluation having allowed to establish the conformity with standards and in a general way with the whole referential defined in this Part, for

a product coming from an applicant and from a process of design and/or of manufacturing and/or of marketing.

The NF mark ought to check characteristics of safety of people and goods, of usability and durability of products, as well as the possible complementary characteristics allowing differentiating on the market.

The functioning of the NF mark leans on a network constituted by AFNOR Certification, mandated bodies, laboratories, inspection bodies, auditors, regional coordinators and technical secretariats.

According to the General Rules of the NF mark, AFNOR Certification attributes the management of this application of the NF mark to LCIE, said mandated body.

1.1 Quality management provisions

The applicant or license holder of the right to use the NF Mark shall:

- Ensure control of its manufacturing and its products in its marketing channels up to the end user
- Implement provisions on system quality management in order to ensure that products which have or will have the right to be marked with the NF Mark are or will be manufactured permanently in compliance with the Certification Rules.

The minimum provisions that the applicant / license holder of the right to use the NF Mark must put in place for the quality management system and for the products testing in order to ensure that those products which benefit from the right to be marked with the NF Mark are manufactured permanently in compliance with the Certification Rules, are described below.

1.2 Terms of controls and checks during an application process

Several types of controls are carried out within the framework of the NF mark:

- The tests and verifications on the products, 17/53
- The audits/ inspections performed in the factories (Process design and / or manufacturing and / or marketing, distribution centres...)

1.2.1 - The tests and inspections

1.2.1.1 - Sending the products to be tested

The products intended for certification tests must be sent to the third-party laboratory, customs cleared, and transportation costs paid. Non-compliance with this clause implies rejection of such products by the addressee. The applicant must provide evidence showing how it ensures the traceability of the product.

1.2.1.2 - Tests

LCIE prepares the list of products necessary for the tests and determines the amount of the certification test costs as well (given in Part 6 of these Certification Rules).

The testing program is defined by LCIE.

In the case of a request for extension for a modified certified product, the inspections and tests are defined by LCIE taking into account the modification concerned.

In the case of a request for maintenance, there are no tests to be performed.

The tests can be performed in a third-party laboratory or in an accepted manufacturer's laboratory. The conditions for acceptance of a manufacturer's laboratory are made available by the certification

body on request. The test results are written up in a Test Report, incorporating the desired national deviations.

The tests linked to the certification and made before the application for certification may be taken into account, provided that the provisions of the reference standard for accreditation of the products certification bodies are satisfied.

The results from laboratories recognized in other certification schemes (e.g. IECEE, CENELEC (CCA), LOVAG and ASEFA) can be taken into consideration for the issuance of the NF Mark. However, a complementary testing may be required to verify the national deviations.

When a certification system is added, the relevant procedure is included in these Certification Rules.

1.2.1.2.1 – CCA Procedure

The CCA procedure allows manufacturers to have access to the NF Mark based on other European Marks granted by certification bodies that are signatories of the CCA Agreement. Reciprocally, the access to other European Marks can take place based on the NF Mark.

This CCA procedure can be realized according to the normal CCA procedure or the accelerated CCA procedure.

Effectively this addresses a core purpose of our requirement for recognition of the IntelliHeat product type, as the CCA procedure would dictate that the NF rating already in place for the IntelliHeat heating system products would be transferable to an equivalent UK accreditation for efficiency and safety of product.

As described in the normal process for the NF certification mark:

1.2.1.2.1.1 – Normal procedure

This procedure is based on the CENELEC Certification Agreement of September 11, 1973 revised on March 29, 1983. The text of this Agreement is published in CENELEC MEMORANDUM no. 13.

- It applies to electrical equipment which satisfies the harmonized standards, that are standards in compliance with a Harmonisation Document (HD) or with a European Standard (EN) from the CENELEC or with a document which is covered by the procedure defined in CENELEC Memorandum no. 7.

- Its purpose it is to avoid repeating tests in various laboratories of the signing bodies, when the device presented has been the subject of an agreement to use a Mark issued by a signing body, after tests based upon the harmonized standards.

- It can be used - even in the case where the harmonized standards do not exist yet - for equipment which is covered by standards which have been brought into line with European publications (EEC) or international publications (IEC). It is obvious that only bodies that issue their Mark according to their national standards in line with these publications can accept this procedure.

The description below indicates the various steps in the normal CCA procedure for obtaining the NF Mark. The manufacturer sends the following to LCIE:

- a written request, accompanied by a description of the device,
- a copy of the Notification of Test Results (NTR) or of a Statement of Test Results (STR) accompanied by a copy of the TR (Test Report) from the European Certification Body which carried out the tests,
- a copy of the declaration of identity or, as the case may be, a descriptive statement of the modifications made or planned.

Based on the CCA Agreement, LCIE examines the above described documentation, determines, where applicable, any complementary tests to be carried out, and then issues the NF Mark.

Based on this procedure we are keen to understand whether a similar standardisation process is in place on the British market to convert the existing NF Electricite Performance rating into an equivalent British Standards rating.

The NF Performance rating is already accepted as an equivalency to all applicable European and international norms, a full list of which has been provided within the following table:

1 - APPLICABLE STANDARDS AND SPECIFICATIONS FOR THE NF ELECTRICITE MARK

1.1 – Household and similar electrical appliances

Standard title	Standard reference
Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	EN 62233 + Amendments
Household and similar electrical appliances - Safety - Part 1: General requirements	NF EN 60335-1 + Amendments (C 73-800)
Household and similar electrical appliances - Safety - Part 2-30: Particular requirements for room heaters	NF EN 60335-2-30 + Amendments (C 73-830)
Household and similar electrical appliances - Safety - Part 2-61: Particular requirements for thermal-storage room heaters	NF EN 60335-2-61 + Amendments (C 73-861)
Household and similar electrical appliances - Safety - Part 2-96: Particular requirements for flexible sheet heating elements for room heating	NF EN 60335-2-96 + Amendments (C 73-896)

2 - APPLICABLE STANDARDS AND SPECIFICATIONS FOR THE NF ELECTRICITE PERFORMANCE MARK

Standard title or Specifications	Standard reference or Specification
Thermal storage radiator heaters	CdC LCIE 103-12
Room heaters	CdC LCIE 103-13
Household electric direct-acting room heaters –Methods for measuring performance	EN 60675
Storage water heaters	CdC LCIE 103-14
Methods for measuring the performance electric storage water-heaters for household purposes	EN 60379
Storage water heaters with electrically driven compressor	CdC LCIE 103-15
Heat pumps with electrically driven compressors – Testing and requirements for marking of domestic hot water units	EN 16147
Dynamic Radiators	CdC LCIE 103-16
Household electric thermal storage room heaters - Methods for measuring performance	NF EN 60531 + Amendments

1 NF ELECTRICITE A +++ MARK

The NF ELECTRICITE Mark give evidence of the safety of the product.

1.1 Household appliances

The essential certified characteristics of the products which are in compliance with the NF EN 60335-1 standard and associated Parts 2 are:

- rated voltage
- rated power input

- class of protection against electrical shock
- rated frequency
- IP number

2 NF ELECTRICITE PERFORMANCE MARK

The NF ELECTRICITE Mark give evidence of the safety of the product (see above certified characteristics) AND its performance category.

2.3 Fixed room heating appliances

The essential certified characteristic, complementary to electrical safety, of the fixed room heating appliances NF ELECTRICITE Performance certified and in compliance with the requirements of the CdC LCIE 103-13 is:

The performance category (1 star, 2 stars, 3 stars or 3 stars-eye) defined by:

- the air outlet temperature
- the surface temperature rise
- the regulation (drift and amplitude of the ambient temperature)
- the reliability and endurance
- the detection of opening of windows for the devices of categories 3 stars or 3 stars-eye
- the detection of presence / absence for the devices of categories 3 stars-eye
- the coefficient of aptitude for the products having the categories 2 stars, 3 stars or 3 stars-eye

Relevant scores from Intelli-Heat products NF Performance report

- rated voltage
- rated power input
- class of protection against electrical shock
- rated frequency
- IP number

Both IntelliHeat Cali ranges in question (Eco-sense and I-Sense) are accredited the 3 star-eye rating with the following efficiency scores

- the air outlet temperature
- the surface temperature rise
- the regulation (drift and amplitude of the ambient temperature)
- the reliability and endurance
- the detection of opening of windows for the devices of categories 3 stars or 3 stars-eye
- the detection of presence / absence for the devices of categories 3 stars-eye
- the coefficient of aptitude for the products having the categories 2 stars, 3 stars or 3 stars-eye

A full description of the NF Performance certification requirements is included at **Appendix 1 - NF**

Performance standard application requirements

The two most important factors from the NF rating that account for considerable savings in the latest IntelliHeat ranges are:

- the integration of additional temperature sensors (open window detection system) and motion sensors on each radiator

These new systems have been recognized by LCIE Bureau Veritas (as part of the NF Electricite performance rating system, revised in 2014 to take account of these innovations) to generate **an average 16.2% saving** compared to the previous rating systems highest rating (C). This saving breaks down as open **window detection (3%)** and **presence detection (13.2%)**.

Eco-Design Lot 20 Legislation 2018 – Requirements

Intelli Heat Compliance



All the latest IntelliHeat radiator systems are fully compliant with Lot 20 of the New E.N. ECO DESIGN Legislation for Energy Related Products compliance.

“All local space electric heaters manufactured for sale in the EU after 1st January 2018 which use electricity, or liquid fuels, must comply with a minimum efficiency standard. This includes electric radiators, electric under floor heating and electric and gas fires.”

What does this mean?

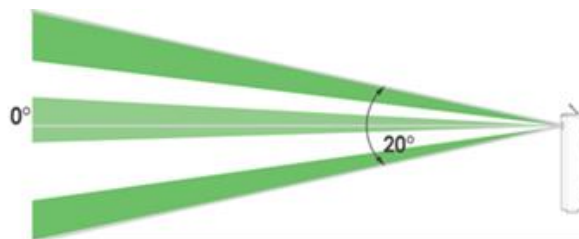
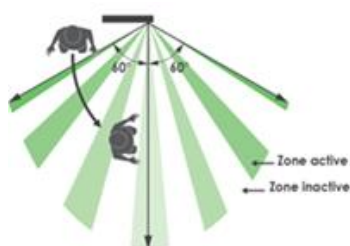
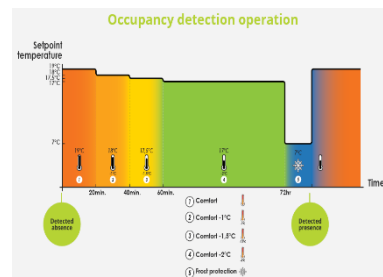
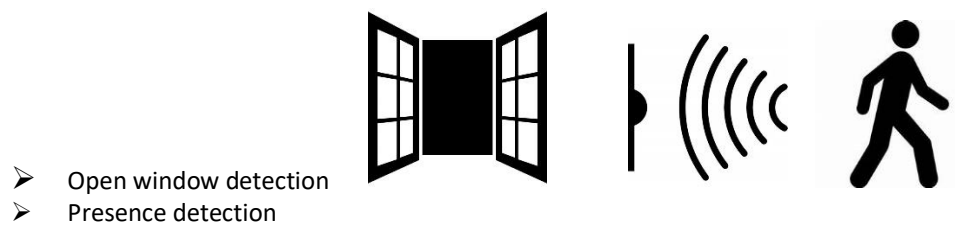
Very basically... From 1st January 2018 all electric space heaters sold in the UK must meet a set of minimum efficiency standards, this means that at the very least all heaters will have to incorporate intelligent room temperature controls to minimise wasted energy and comply with Energy Related Products Regulations (ERP). Essentially, Lot 20 demands that all electric space heaters sold after the 1st of January 2018 must incorporate intelligent room temperature controls to minimise wasted energy.

Since 1st January 2018 all electric space heaters sold in the UK must meet a set of minimum efficiency standards, this means that at the very least all heaters will have to incorporate intelligent room temperature controls to minimise wasted energy. The Cali Sense compliant to the Eco Design legislation, and indeed exceed, all the requirements of Lot 20.

Effectively the integration of Lot 20 technological features provides our customers with **an average of up to 30% saving** on energy consumption as compared to storage heater, panel heater or non-intelligent control electric heating system.

To be LOT 20 compliant, heaters must include amongst other things, three key features:

- 24/7 time and temperature control, either built in or through wireless/WIFI APP.
- Electronic thermostatic control for accurate room temperature measurement.
- Open window/door recognition so the heater can reduce usage should the user leave a door or window open reducing the room temperature rapidly. IntelliHeat products have further incorporated a Triac energy regulator within the smart thermostat system, which allows the heater to choose the time it engages to bring the room up to the required temperature set by the user therefore further reducing energy wastage.



Building Regs Part L1a and L2a

IntelliHeat systems are composed of individually set and programmed radiators, this ensures full compliance with all zoning requirements of the Building Regs Part L1 and L2.



Intelli Heat and Eco-design, pushing the electric heating industry towards compliance since 2008



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