Lighting Coronation Street with innovative techniques and evolving technology

Lighting director **Chris Chisnall** talks about the creative challenges of television drama and modern LED technology behind lighting Coronation Street

By Chris Chisnall

The first episode of Coronation Street was broadcast in December 1960. Not surprisingly I wasn't involved in the production at that time but fast forward 22 years and I found myself behind a camera in Studio 6 at Granada TV in Manchester filming a scene in the Rovers Return.

I was a cameraman back then working on all manner of productions but over time was drawn into lighting. I loved the idea that light and the manipulation of it gave me complete control over an image and could be used to create a director's vision on screen in many different ways.

The way Coronation Street is lit and shot has changed a lot since that first episode and the factors driving that change have been both technical and aesthetic.

Coronation Street, like the other continuing dramas in this genre, is shot both in "three wall sets" on multiple cameras and on an exterior backlot.

Back in the black and white 60's there was no backlot however. The street itself was built in the studio (painted cobbles and pavement on the studio floor), together with three, maybe four other sets. The Rovers was always there of course, along with the front room of the Barlows, perhaps Elsie Tanner's house and Len Fairclough's yard…

These three wall sets were lit much like a stage play would be with the cameras, usually three, being the eyes of the audience, looking at the action through the non existent fourth wall.

Hard fresnel theatre fixtures would be used as backlights, 1K (1000 watt) tungsten lamps known as "pups" rigged in the corners of each set provided visual separation of the artists from the background. Punchier 2K fresnels would

The Rovers Return has been the heart of Coronation Street since episode one.

push light through the windows whilst large, internally reflecting "Northlights" or dish shaped "Scoops" would provide softer lighting from the camera side all mounted on drop arms or "pantographs" from the lighting grid above the set.

This way of lighting persisted well into the 90's and despite a few tweaks in the early 2000's became a standard look for Coronation Street, so much so that production were very wary about anything that might change the established look of the programme.

Then, as now, Coronation Street moves fast. We have three, occasionally four units leapfrogging each other. Each unit shoots up to 30 pages a day, sometimes more which is Olympic sprinter speed compared to shooting a feature film. How? Well, by compromising I guess. The more camera angles we can shoot at one time the fewer set ups we need to complete a scene. As I mentioned previously, we used to shoot on three cameras in the studio, positioned left to right across the fourth wall and cut in real time by a vision mixer. The cameras can move of course, being mounted on Vinten pedestals, as directed throughout the scene and because we use zoom lenses we can change lens angle very quickly.

So what's the compromise? From a lighting point of view three cameras used in this way is not great for drama. Given a single camera angle a shot can be lit perfectly. The backlight lights the back of an artist to provide separation from the background, the key light gives us modelling on the subject and the fill light balances out the contrast ratio.

If you have two artists talking to each other and the director wants to cross shoot them then you have a second camera pointing in the opposite direction to the first. The original backlight is now also acting as a key light for the second person with the original key becoming a backlight! You are now forced to find a position for the lights that works for both cameras and it's probably not the ideal position for either. Put a third camera angle in the mix and, if you're not careful, the whole setup can end

up being a bland, blanket covering of light! Added to this is the fact we have no ADR time. All the audio must be captured on set so compromising for boom shadows is a further consideration.

The lamps must also be hung from a lighting grid otherwise lighting stands would be seen in the back of shot on one or more of the cameras.

This is the way that soap operas and other shows filmed in front of a live audience have been shot for years.

Contrast this with a high end drama where every single shot is meticulously crafted to work from a specific single camera angle. The entire set up is then re-lit to work from another angle, that's why these productions take so long to shoot.

On Coronation Street we have learnt to compromise to the best of our ability and this is why the show looks the way it does, giving it a charm of its own.

With all that said, we do strive, wherever possible, to increase our production values. We now shoot mainly on just two cameras and preferably in one direction at a time. This allows us to light in a more cinematic style, source lighting, a directional technique where light appears to come from the obvious sources within the scene, rather than the back-three quarter style of old.

We can't do it all the time of course, time is tight for us but when we can we certainly will and this hybrid style of shooting has become the norm for us.

The start of the LED age. Around mid 2011 we were told that ITV was going to relocate Coronation Street to a new, purpose built studio facility at Media City – exciting news, and a chance for us to rethink the way we do things.

Four studios were to be built and since we already had a lot of lamps at Granada Quay Street there would be an element of lift and shift, transferring the best of what we had to Media City. There wouldn't be enough lighting though to populate all four of the new larger studios, so we had to buy some new kit.

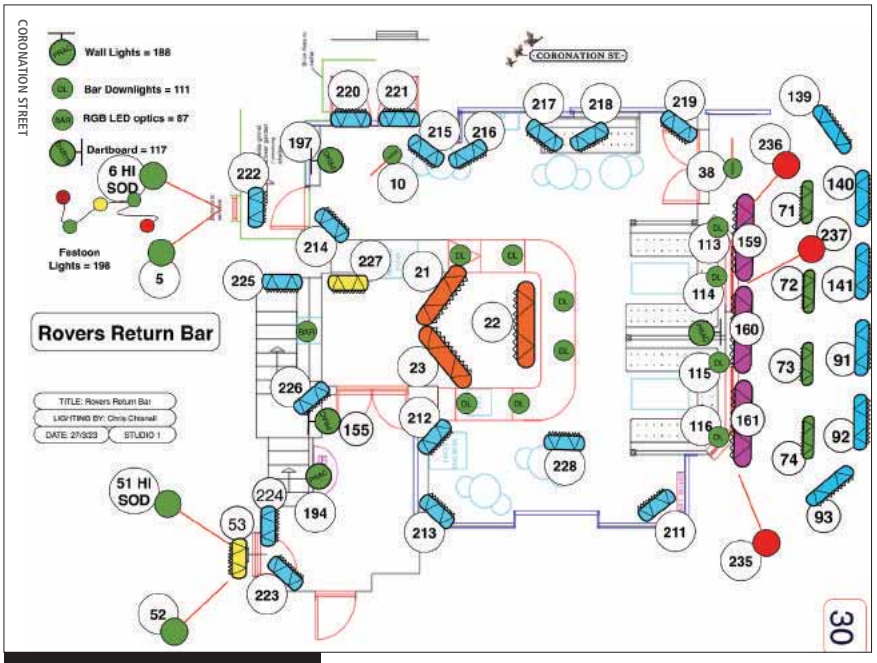
An emerging technology in the field of lighting was LED.

Tungsten lamps produce light by heating up an element until it glows. Only around 5 to 10 percent of the energy that is put into a tungsten lamp comes out as light, the rest is heat so a 1000 watt lamp is much like a one bar electric fire! With all the lights we use on set a tungsten studio can get very hot indeed!

This is one area where LED lights shine (forgive the pun), they are incredibly efficient using about a tenth of the energy required for a tungsten source and putting out very little heat. This means that not only are they more cost efficient to operate but we wouldn't need anything like as much air-conditioning to make the studios comfortable to work in. A double saving.

The downsides though were:

- LED lamps were a totally unknown quantity.
- They were very expensive, a tungsten 'pup' might cost £200 where its LED equivalent would be £2000!
- They were, and still are, heavy. That's a big consideration when designing a lighting grid to carry the weight.
- The colour quality of the light varied greatly between different manufacturers.
- There was a very limited variety of types of light fitting, a few fresnels of differing output levels and that was about it!



Rovers Return bar LED lighting plot.

Rovers Return DIY softbox with vertical louvres.

It was clear though that even though LED was in its infancy it would be the future of lighting and we needed to dip a toe in the water.

Sunshine and tungsten lamps provide the gold standard when it comes to colour rendition.

Tungsten lamps give an even distribution of colour wavelengths following the Planckian locus and their performance provides a well known and comfortable place for lighting directors to be. Other sources, which are not black body radiators, have peaks and troughs at varying wavelengths.

LED lights may well output a mixture of wavelengths approximating those of an incandescent source but they have a different distribution in their spectrums. We say that these lamps have a Correlated Colour Temperature. They may not accurately reproduce, say, the pastel shade of Tracy Barlow's mauve summer dress

because the ratio of red to blue hitting the camera sensor might not be the same as it was when the dress was lit by sunlight.

Obviously this is a problem. Imagine a scene of Tracy walking down the street to the Rovers…cut to the Rovers interior and suddenly Tracy's dress has changed colour!

LED manufacturers are well aware of this and are working hard to improve matters. The smoothing out of spectral distribution can be achieved in various ways. Filtering can be used to reduced the large energy spikes at certain wavelengths but this leads to an overall decrease in luminous output. Modern LED sources now have complex combinations of emitters, additional reds, lime greens, ambers and more, all computer controlled and trying to fill in the spectral gaps of the original lamps. They're getting very good too, a massive improvement over the first units.

It was decided to stick with tungsten fittings for the largest studios, 2,3 and 4 and to populate studio 1 with LED. I went with De Sisti LED fresnels, F7's, a close equivalent to a tungsten pup.

Unfortunately, there was no large LED soft light available at the time, something that we needed to use as camera side fill light. We had no alternative other than to stick with tungsten for this so I bought some Chimera LightBank (shallow) 3x3 ft units (1k bubbles) and here was our first mismatch issue.

The colour temperature of the F7s was 3200K, effectively the same as a tungsten lamp at 100%.

As you dim a tungsten source its colour temperature changes, getting warmer the lower you go. In a tungsten studio it is usual to line the cameras up under a tungsten lamp running at 70% giving a colour temperature around 2750K. This is to give us some latitude with the light level (using the lighting console) without affecting the colour temp too much.

When you dim an LED lamp the colour temperature remains constant, it doesn't change at all, so lining up the cameras to a LED source at 3200K would mean any tungsten lamp that wasn't at 100% would look too warm!

As it happens though, it wasn't that much of a problem, we simply kept a quarter blue on the soft lights to bring them back up in temperature and handled larger variations with layers of ND. Still, we had to be very mindful of colour temperature when mixing tungsten with LED (and still do).

Two more studios. We were doing so well that ITV decided to increase the number of episodes we put out each week. More episodes meant we needed more production facilities so two more studios, 5 and 6 were built.

By now LED lighting had really come of age. A plethora of soft LED panel lights was on the market along with the usual fresnels and there were some really good large LED softs around. I replaced our ageing Chimera Shallowbanks with Aladdin 3x3 LED's making Studio 1 fully LED now.

Technology was moving on pace and the new kid on the block was the bi-colour LED, essentially a fitting which combined both warm and cold led emitters to allow us to set the lamp to any colour temperature we liked (within a range of around 2700K to 6000K or higher).

I went with soft LED panels for the new studios. This was a departure from the usual fresnel setup but I wanted to experiment with a softer, less harsh look and hopefully head towards that source lighting look that we really wanted.

I think it worked, gone were the give-away hard shadows of the fresnel pups now replaced with a softer wrap around look which I thought was very pleasing. I liked it so much that I replaced the lamps in Studio 1 with soft panels to match.

We now have three tungsten studios and three LED studios with bi-colour lamps.

I wanted to convert studios 2, 3 and 4 to LED as well but Covid came along and scuppered those plans, at least until the extra cash van was found.

For me, bi-colour lamps have been the greatest innovation in lighting technology. On location they can quickly and accurately match most existing light sources (indeed with the newer RGBAW etc. lamps, any existing light source!). Never again does a spark have to go hunting in the back of the van for the right level of colour correction gel, even the green/magenta shift of fluorescents can be accommodated.

One interesting thing though, in a bi-colour studio, a "black box scenario", we can choose to use whatever colour temperature we like so what do we balance the cameras to? I've chosen to pick somewhere bang in the middle of the range, say 4300K. That way you have the maximum option to warm a lamp up, maybe for a candlelit dinner scene, or cool it down to get the cold light of day right from the console and without having to stop rehearsal so that a gel can be put on a lamp.

Tyrone and Fiz Dobbs at their family home at 9 Coronation Street.

There are so many different lamps now from so many different manufacturers. They all have their pros and cons but one thing I find frustrating is the lack of consistency in spectral output.

They're all slightly different

I suppose that is to be expected given the complexity of chip design, manufacturer and driver sofware but it does mean you have to be very careful when specifying which lamps you need for a studio. The easiest option is simply to stick with the same manufacturer for all the lamp types you need even if they might not be all the ones you want, just so that you know they'll all look the same on camera!

I wish lamp manufacturers would all get together and agree on a standard…

An iconic pub. The Rovers Return has been the heart of Coronation Street since episode one. It's the centre of the community, a small(ish) backstreet pub where the residents of Weatherfield congregate to swap tittle-tattle, celebrate events and conduct nefarious meetings.

The original lighting plot for the Rovers used lots of frontal scoops and a few pups for backlights but the name of the game then was about getting enough light on set for the cameras!

I've been in a few backstreet pubs in Salford, just for research of course, and they tend to be quite dark but with a warm glow emanating from the bar itself. Cold daylight filters through the etched windows whilst the back of the pub is puddled with light from the wall lamps.

That's the image I had in my head for how I wanted the Rovers to look and we try to recreate that whenever possible. To do it properly we'd really have to shoot it all single camera but that's never going to happen, we are a fast, multi camera production after all. Creating the mood is about keeping light off the back wall whilst picking out the artists and with today's soft, colour temp changing LEDs I think we do a pretty good job of getting that backstreet pub feel.

There are quite a few lamps up in the air above the Rovers but we don't use them all at once of course. Which ones to choose changes from scene to scene and as camera positions change. I've tried to place them in what I think are the most usable positions for most scenarios and they can always be augmented by floor lighting.

I designed the grid lighting plots as a generic kit of parts for the LD to build a look for a particular scene. I think it's pretty flexible and works well.

If it doesn't exist, make your own. As I mentioned previously, early LED sources were limited to a few fresnels.

The Rovers is quite a large, composite set requiring a lot of coverage. In the tungsten days I had two 5K's into 216 frames (+1/4 blue) mounted over the windows to flood the bar area with soft light from that direction. I used 1K pups above the bar bounced off poly boards with pups directly over wall lamps to simulate modelling from practicals.

There were no 5K LED equivalents at that time or large LED softs but I knew of a UK company, GEKKO Lighting, based in Borehamwood (now defunct I think), that were making an interesting LED soft, one of the first panel lights, the GEKKO Karesslite. It was about 90cm x 20cm.

I required something much softer, much larger. I figured I'd need a soft source around 1x3m to get the effect I wanted for the Rovers so I talked to GEKKO and they built it for me.

A 1x3m box containing (12 if I remember) GEKKO Karresslites mounted vertically in the box frame hitting a built-in "shower curtain" front covering. It was bicolour too. By individually addressing groups of emitters firing through a purpose cut orange acrylic checkerboard pattern we could fill the pub with cold daylight or warm ambience at the push of a button. I think it might have been a first!

The GEKKO's lasted for about 5 years, we had our money's worth out of them but eventually their output level dropped and colorimetry shifted to the point where we couldn't correct it anymore. I retired the Karresslites (they are actually in use on the lot now, lighting the interior of the Rovers frontage) but kept the skeleton of the soft box. It sits where it always has, above the Rovers windows but now contains 3 x De Sisti Softled 8's. Very punchy, very controllable, I'm quite proud of it really.

One last thing about the soft box. It's difficult to stop a large soft source spilling into areas of the set that you don't want it to light, and as I said we really need to keep light off that back wall as much as possible. We could put up large flags of course but they do tend to get in the way of other lights in the grid. My solution was to mount a 3m long stretch of black vertical blinds in front of it, rather like a giant louvre. A remote control allows us to angle the blinds and thus steer the light away from the back wall or fourth wall if we're shooting back that way.

On the backlot. The Street itself is part of a backlot on site next to our studios. It's grown in size considerably since the Granada Quay Street days and now comprises Coronation Street, Viaduct Street, Rosamund Street and Victoria Street. New additions include a precinct, police station and tram station.

All these areas have to be lit, and not just for the night scenes. Shop windows need lights and we need to lift the interior of the houses when we see into them through open doors.

If we are shooting against the Sun then we need a lot of light to fight the shadows using powerful lamps and/or bounce boards to push the sun back into the dark areas.

We use HMI lighting for the day scenes. Big HMI lamps are still the most powerful option when it comes to combating the strength of the sun but the new generation of LED lamps are catching up fast. Vortex 8s (Cream Source) and Sky Panels (Arri) are firm favourites whilst Aputure Storm 1200 LED lamps are hot on the heels of the Arri M18 HMI workhorse. There is a Storm 2600 now (other brands are available!) that I haven't used yet but I believe it's the equivalent of a 4K HMI, less heat, less

power and more controllable. These new LEDs are sure to be in demand.

At night we use a mixture of tungsten and LED lamps on the lot. Dimmable and raw 16 amp feeds and DMX networking is available in every building with the odd 32 amp feed dotted around.

We have a production gallery with an ETC Ion console above the Salon on Coronation Street, it's a good, central location from which to control everything.

The street lamps are all high pressure sodium, the old orange ones. We mimic the look of these using Lee High Sodium gel.

Actually, there is one new LED street lamp outside the flats on Victoria Street.

I don't like it…

On camera, LED street lamps look a cold, dirty blueish-white which, I know, we're all getting used to because they're everywhere now.

In the studios we use the same gel (or an RGB fitting) to match the orange street light on the net curtains and for me that instantly says "it's night time".

I suppose the time will come when we have to replace the street lighting with the modern equivalent and of course that is going to completely change the look and feel of Coronation street at night. I've tried lighting the nets in the studio with that cold LED look and keeping the backdrops dark but to me it just looks like a really dull day, still, it will happen eventually and I'll have to experiment more to find a look that works for us.

There are some scenes that can't be shot in the studio or on the back lot. We have to go on location and we like that, it gets us out of the house for a bit!

Daytime scenes are much like shooting on the lot really except we have to bring our own power, a diesel generator, although watch this space, large portable lithium ion batteries are replacing diesel gennys when we use lower powered LED sources.

Sometimes though you just can't beat the big HMIs. I used around 50K of lighting a while ago on a day for night shoot in a forest. It seems counter intuitive that you might use a lot of light to create a dark scene but that's what was needed!

I had to stop the camera down and use all the ND I could to turn daylight into darkness then push a vast amount of silvery moon light into the scene using 18Ks at close range. The results then went to grading for the final look - great fun!

I've been lighting Coronation Street continuously now for 21 years not to mention all the time I spent on the programme before that working as a camera operator.

There's never a dull moment on "The Street', I've blown things up, crashed cars, trucks, vans and trams (I won an RTS award for that one!) I've set up a lighting rig underwater and seen many, many murders, affairs, weddings and funerals. I've overseen two live transmissions and welcomed the Queen to the cobbles.

I feel so lucky to be in the position I am. My wife thinks I go to work each day, I don't, I just come to have fun playing with a load of (rather expensive) toys!

Lighting really is magic!

Article by Chris Chisnall, Head of lighting on Coronation Street.

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