Are patent pool royalty rates FRAND?

This question sits at the intersection of licensing practice, competition policy, and judicial interpretation. Courts, regulators, and industry participants often look to patent pools for guidance in determining FRAND[1] rates. Yet doing so risks a fundamental mistake. Patent pool rates — whether characterised as FRAND*, sub-FRAND,*[2] or otherwise — are structurally unsuited to serve as benchmarks for bilateral licensing.

I asked several attendees this headline question at the recent *Patents and Standards* conference in London — in informal conversations during coffee breaks. I also posed the question to fellow panellists there in our session entitled *Platforms and Pools: Where Next?* While Sisvel panellist Matteo Sabattini was proud to inform us emphatically that courts had found patent pool Sisvel's rates FRAND, most others answered equivocally.

This question is also under consideration by the UK Supreme Court. In December 2023, Tesla raised proceedings seeking, among other requests, a declaration of FRAND terms for a license to SEPs in the Avanci 5G Platform. Before opining on FRAND terms, the UKSC must determine if those are applicable in that case.

There's extensive effective and efficient SEP licensing based on FRAND commitments — bilaterally and in patent pools. However, pool rates are typically below bilateral FRAND rates for various reasons. For example, pooling is well-known to reduce transaction costs and so these savings can be passed on in lower royalty rates.

Pooling rates that might be considered sub-FRAND in bilateral licensing shouldn't be deemed a breach of SEP owners' FRAND commitments. Voluntarily offering relatively low royalty rates non-discriminately is not harmful to any licensee. Similarly, unilaterally offering licensing to all royalty-free is also harmless.

As patent pool terms are generally regarded as FRAND it should be accepted that the range of FRAND rates might be very large, given the various other differences in licensing structure and terms versus bilateral licensing.

Alternatively, perhaps Standard-Setting Organisations (SSOs) and others should regard collective licensing including patent pooling as another, distinctly different kind of licensing arrangement to bilateral licensing — just as royalty-free is already recognised as distinct from FRAND licensing by some SSOs?[3]

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[1] Fair, Reasonable and Non-Discriminatory (FRAND) is generally regarded as being the same as Reasonable and Non-Discriminatory (RAND).

[2] This contentious term seems to describe rates that fall below the range that would be considered suitable FRAND benchmarks in bilateral licensing determinations. See subsequent section on UK High Court Judgment in *Samsung v. ZTE*.

[3] The Patent Policies of IEEE SA and ITU-T/ITU-R/ISO/IEC accommodate "without compensation" and "free of charge", respectively, (i.e. royalty-free) as well as RAND licensing.

Either way, patent pool rates are inapplicable benchmarks for bilateral licensing — and vice versa — in the same way that the existence of royalty-free patent pooling should not impose that pricing as an obligation on SEP owners who choose not to join such an arrangement.[4]

Where and when what is, isn't

Where a court rules that rates are FRAND, then they are as a matter of law. But what if such rulings clash with other rulings and expectations or norms? Non-FRAND can be above or below FRAND. A Goldilocks test is usually applied in considering what is FRAND — not too high, and not too low. But, how low can a pool rate be FRAND if cumulative bilateral FRAND rates for a similar proportion of SEPs to the same standard are much higher?

In contrast, royalty-free in-licensing — that commonly comes with the strings attached of a royalty-free out-licensing (i.e. cross-licensing) requirement — cannot be FRAND because that does not enable innovators to be "adequately and fairly rewarded" for their patented contributions to the standards. [5] The only way to make money with royalty-free licensing is as an implementer in the downstream market. Many innovators don't want to do that. Nevertheless, the Bluetooth SIG that also pools patents for licensing insists that its contributing members license royalty-free.[6]

Uncertainties about the meaning of FRAND and how to interpret or apply FRAND rates remind me of the contention between UK authorities about whether Rwanda was a "safe nation" to deport asylum seekers. The UK Supreme Court ruled in November 2023 that Rwanda is not a safe country for asylum seekers, citing risks of refoulement (returning individuals to countries where they face persecution) and deficiencies in Rwanda's asylum system.[7] However, the UK government passed the Safety of Rwanda (Asylum and Immigration) Act 2024, declaring Rwanda a safe country. This legislation overruled previous court judgments and limited asylum seekers' ability to challenge removal decisions.[8] Rwanda was expediently deemed safe as a matter of law — whether or not it actually was in any general understanding of the term.

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[4] Bluetooth SIG participation requires reciprocal, "without compensation" (i.e. royalty-free) cross-licensing. Google and others have asserted that open source video codecs including VP8, VP9 and AV1 can be implemented without paying any license fees to anyone. Nevertheless, various patents that are not available royalty-free read on those standards. Google paid off pool administrator MPEG LA so that free proposition could be maintained for VP8 implementers. Sisvel offers a licensing platform for patents essential to VP9.

[5] "The basic principle of the ETSI IPR regime remains FRAND with no specific preference for any licensing model".

[6] Bluetooth SIG participation requires reciprocal, "without compensation" (i.e. royalty-free) cross-licensing.

[7] Rwanda asylum plan - Wikipedia, UK-Rwanda Scheme Exposes Hidden Migrant Deportation Risks - VisaVerge

[8] Safety of Rwanda (Asylum and Immigration) Bill: factsheet - GOV.UK

We've moved on from the notion that there is a single FRAND rate in the UK High Court's *Unwired Planet* ruling, with the Appeal Court and Supreme Court accepting that FRAND can be a range. But how wide can the FRAND rate range be and still meet the Goldilocks test? Alternatively, perhaps, FRAND should be reserved for bilateral licensing, and patent pooling should be subject to other stipulations with its own defined term?

Compressing the stack in bilateral licensing

There was a lot of scaremongering about royalty stacking until around a decade ago. With the valid assumption that technology standards include complementary SEPs owned by many different licensors and the defective assumption patent owners are uncoordinated monopolists, it was widely asserted without supporting empirical evidence that royalties would stack to exorbitant levels. Nineteenth century *Cournot Complements* economic theory supports this extreme notion with the simple example of perfect monopoly supply (i.e. with ability to withhold it unilaterally) of zinc and copper (in separate versus unitary ownership) in the manufacture of brass.[9]

But SEP owners are far from being monopolists. Their pricing power as licensors is severely constrained by FRAND commitments. Implementers may continue to produce products including SEP technology while holding out from paying any licensing fee at all, deferring or diminishing charges. Many SEP owners have major interests and in some cases predominant considerations as licensee implementers in the downstream product markets as manufacturers. Standards development, products sales and SEP licensing are continuous in a repeating process where there are strong incentives to collaborate for the common good, which also tends to moderate royalty demands.

I was first to provide empirical proof that there's no stacking in my 2015 rebuttal of a prominent paper asserting that the royalty stack on a $400 smartphone could be 30% (i.e. $120). I showed that the aggregate royalty yield to all licensors on all mobile phones sold was no more than around 5%.[10] My methodology was subsequently replicated and validated by academics including Stephen Haber et al. who derived a slightly lower percentage in their peer-reviewed publication.[11] Another widely-cited seminal research publication of mine around then showed how the enormously successful downstream product market for mobile phones was very competitive, innovative and cost efficient under FRAND licensing.[12]

[9] Cournot also developed what is now conventional economic theory on monopolies and the coordinated pricing of substitutes (e.g. as occurs in price fixing by competitors).

[10] IP finance: Cumulative mobile-SEP royalty payments no more than around 5% of mobile handset revenues

[11] An estimate of the average cumulative royalty yield in the world mobile phone industry: Theory, measurement and results - ScienceDirect

[12] Don't Fix What Isn't Broken: The Extraordinary Record of Innovation and Success in the Cellular Industry Under Existing Licensing Practices

Pooling further reduces any stacking tendencies

Cumulative royalties are yet further diminished among licensors sharing transaction costs and coordinating their pricing through patent pools. And, while patent pools tend to be driven by the interests of licensors, in many cases these are also licensees. Those with major positions in the downstream product markets as implementers seek relatively low rates and volume or payment caps to mitigate in-licensing costs versus the out-licensing income they receive. For example, Via Licensing's (formerly MPEG-LA's) H.264/AVC pool is royalty-free for the first 100,000 units, with a maximum per unit royalty of $0.20, reducing to $0.10 for volumes above 5 million units, and with annual caps rising over the years but never exceeding $10 million.[13] So that cap could be reached with sales of less than 100 million units. With global smartphone sales volumes of around 1.25 billion in 2025, that equates to less than 6% market share. Smartphone market leaders Samsung, Apple and Xiaomi with market shares of 19%, 18% and 13%, respectively, are all licensors in that pool.[14] For Samsung, its overall royalty cost is therefore no more than $0.04 per unit, assuming full utilisation of the annual cap and proportional allocation across its sales volumes.[15] That's an 80% discount to the maximum rate of $0.20. Most of those OEMs also have large sales volumes of tablets, PCs and TVs including this codec, further increasing their discount rates.

Via Licensing's patent pool for the successor HEVC/H.265 standard has a similar rate structure, with a maximum royalty of $1.50 per unit and a much higher annual payment cap. Volume discounts of up to 80% of that maximum are also possible there. With two different pools for the HEVC/H.265 standard, Via's pool included a somewhat smaller proportion of SEPs than it has in its AVC/H.264 pool.

Disproportionality

In stark contrast to relatively low rates in pooling dozens of licensors' SEPs, rates offered bilaterally are also typically higher due to the better quality of those patents in many cases. Some SEP owners license bilaterally instead of joining a patent pool because they believe the value of their patents would not be fully reflected and instead be diluted among less valuable patents there.

This disparity in patent portfolio values also explains why some patent pools never achieve the "critical mass" of recruiting sufficient major SEP owners for commercial

[13] It is estimated that this pool includes the large majority patents that are essential to the standard.
[14] IDC - Smartphone Market Share, https://www.via-la.com/licensing-programs/avc-h-264/#licensors
[15] 10,000,000/(1,250,000,000 x 0.19)= $0.04. It's unclear how much gross licensing income Samsung, Apple and Xiaomi would generate from the pool. They are among more than 40 licensors sharing that maximum of $0.20 per unit charged.

success or viability.[16] For example, in cellular phone licensing, patent pool formulation in the 2000s for 3G and for 4G LTE in the 2010s flopped because SEP holders with seminal patents (e.g. Qualcomm in CDMA technologies) were unwilling to have royalties apportioned to them through measures such as patent counts.[17]

The US International Trade Commission has recognised these dynamics explicitly in a Section 337 Exclusion Order matter between Complainant Nokia and Respondent Amazon:[18]

> *'Amazon contends that "Nokia's 'Comparable Licenses' reflect* Ex-Post *Hold-Up Value" because "its licenses demonstrate Nokia is trying to arrogate for itself the value of the entire H.264 standard" "rather than seek royalties on the value of its patented technology alone." '*

However, the ITC countered that in its immediately following text by also stating that:

> *"'Any argument regarding holdup, however, is contradicted by the large number of sophisticated companies that have taken a license at Nokia's program rates."*

In particular, the ITC's Initial Determination also stated that:

> *'Amazon contends that a RAND rate would be derived from patent pool rates, and in particular, MPEG-LA. None of Nokia's patents - including the asserted patents – are part of the patent pools on which Amazon relies. There was no evidence presented at the hearing that the patents that are part of the patent pools are valuable, such that their value equates to the value of Nokia's patents. Indeed,* ***patent pools often set sub-RAND rates*** *to reduce their costs and* ***drive down the pool founders'*** **[downstream product market]** ***production costs***. They also **attract weaker patents because licensees with stronger portfolios are more likely to want to engage in bilateral negotiations** because they can get a higher price for their patents. (Emphasis added, citations omitted.)

Nokia's bilateral licensing rate offer to Acer, Asus, and Hisense for its H.264/AVC and H.265/HEVC SEPs was €0.60 ($0.69) per device sold illustrates the justified disparity with the pool rates I've indicated for these standards.

The appeal of patent pool rates as benchmarks is that they are typically publicly disclosed figures, market-tested outcomes, reflecting broad industry participation and acceptance. On that view, pool rates should carry evidentiary weight in assessing

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[16] I've been arguing for more than a decade that "pool flops" make particularly bad benchmarks for bilateral licensing rate determinations, as I did in my 2013 critique of *Microsoft v. Motorola and Innovatio case* judgments.

[17] Following the evident failure of the 3G pool, in a 2011 publication I predicted that prospective 4G LTE pooling would also fail.

[18] Certain Video Capable Devices, Inv. No. 337-TA-1379, Initial Determination by ALJ Doris Johnson Hines (ITC, 2025)

FRAND. However, this overlooks the aforementioned structural differences between pooling and bilateral licensing, including portfolio heterogeneity, participation incentives, and pricing constraints that are specific to collective licensing arrangements.

Judicial blinkers

MPEG-LA/Via Licensing H.264/AVC pool licensing is generally regarded as efficient, successful and FRAND compliant. Rates have been deemed FRAND in court decisions including:

- Düsseldorf Regional Court, Germany: In 2018, the court ruled in favour of MPEG LA members Tagivan and Fraunhofer Gesellschaft, stating that the licenses offered were FRAND-compliant (Case IDs: 4a O 15 to 17/17 and 4a O 63/17).[19]
- Düsseldorf Regional Court, Germany: The court also upheld infringement suits brought by IP Bridge and Panasonic against Huawei and ZTE, confirming the FRAND nature of MPEG LA's licensing offers (Case IDs: 4b O 4/17, 4b O 5/17, 4b O 15/17, 4b O 16/17).[20]

There have been several other FRAND-compliant rulings on patent pools. The Düsseldorf Regional Court ruled that HEVC Advance's pool license is FRAND-compliant in a case involving MAS Elektronik.[21] Similarly, Sisvel's Wi-Fi patent pool licensing offer was deemed to be FRAND by the Munich Regional Court in a case involving ASUS.[22] A recent ruling in Brazil followed similar decisions, citing European case law and considering Via's AAC pool offer as FRAND enough.[23]

However, the steep level of discounting in some patent pools, including the AVC/H.264 patent pool was regarded discriminatory in another context. In *Interdigital v. Lenovo*, Justice Mellor's High Court Decision stated that he:

> "*reached the clear conclusion that the volume discounts said to have been applied to the largest InterDigital licensees (i.e. in the range of 60%-80%) do not have any economic or other justification. Instead, their primary purpose is to attempt to shore up InterDigital's chosen 'program rates'... At best, the arguments can only justify relatively small volume discount... most importantly of all, the sizes of the volume discounts said to be used by InterDigital plainly*

[19] MPEG LA wins video coding suit with Krieger Mes and Cohausz & Florack - JUVE Patent
[20] MPEG LA scores another victory in SEP dispute - JUVE Patent
[21] Licence offers of HEVC Advance video pool are FRAND, rules Düsseldorf court - JUVE Patent
[22] Sisvel | Munich Regional Court validates Sisvel Wi-Fi royalty rates as FRAND
[23] Brazilian court enters Panasonic v. HMD PI: Via AAC pool offer was FRAND enough; UPC, German case law cited; ruling points to ip fray – ip fray

> *discriminate against smaller licensees, which is exactly what FRAND is supposed to avoid."*[24]

When I first read this Judgment I called an industry colleague who was involved in the formulation of the H.264/AVC pool and contended that it was not FRAND, after all. He responded that the pool would not have come together with its high level of participation and patent coverage had it not been for its discount structure. FRAND or not, the H.264/AVC pool is a clear, prominent and substantial example of an industry-led solution in SEP licensing.

In contrast, Avanci's automotive licensing for 4G (up to $20 per car) and 5G (up to $32 per car) is only discounted for early birds — to $15 for 4G and to $29 for 5G. There are no volume discounts or annual payment caps.

Non-FRAND factors make rates inapplicable benchmarks

The recent UK High Court Judgment in *Samsung v. ZTE* concludes that some historic bilateral licensing rates are sub-FRAND.[25] Justic Meade states that he "*largely accept[s] ZTE's arguments that they are affected by non-FRAND factors, and severely so."*

"Non-FRAND factors" — is also not a formally defined term, but probably should have been given that this term was coined in this case and appears 23 times in the Judgment — can depress rates below FRAND and make them inapplicable benchmarks for subsequent licensing. Non-FRAND factors in this instance were external pressures and asymmetries weakening ZTE's negotiating position, including: US sanctions and cash urgency, first-licence (discounting), limited out-licensing experience, low litigation leverage, and demands for 5G licensing before ZTE was ready.

For example, the Judgment considers that ZTE was pressed to accept sub-FRAND rates in its prior licensing agreement with Samsung. This was the result of US sanctions: *"ZTE's handset business had more or less collapsed and did not recover, so it is correct to say that ZTE was reshaping itself in a major way."* Justice Meade also states:

> *"I accept ZTE's evidence that its management had nonetheless decided that it had to prioritise establishing a licensing business to create an inflow of cash, and having signalled that it would take a lower price at the start of the negotiations it was not in a position to go back on that and suddenly ask for much more…*
>
> *Prior to 2018 Samsung and ZTE had been discussing a royalty free cross-licence and later a mutual standstill. The details are not important. This changed as a*

[24] Interdigital v. Lenovo, Approved Judgment, 16th March 2023 at 495 , 498 and 499.
[25] As already indicated, my understanding from this case is that sub-FRAND rates are those falling below the range that would be considered suitable FRAND benchmarks in bilateral licensing determinations. See subsequent section on UK High Court Judgment in *Samsung v. ZTE*.

> *result of the US sanctions. ZTE needed money, and with no handset business to speak of, any value to a licence from Samsung was no longer material…*
>
> *The general pressure on ZTE from sanctions and associated need for rapid cash was severe."*

According to the Judgment, this all led to largely sub-FRAND rates without ZTE alleging any bad faith behaviour by Samsung. *"It was the duty of their negotiators to get the best price they could and they cannot be criticised for taking advantage of ZTE's open expressions of weakness."*

An alternative perspective is that FRAND allows for hard bargaining and the disparate outcomes that result from it. In this, rather that quantity discounts, first-mover discounts, discounts on past use, discounts for large up-front lump sum payments, and so on and so forth being non-FRAND factors, these area all fair game in licensing negotiations.

Sub-FRAND ≠ FRAND non-compliant

Either way, pool rates — whether or not they are regarded as FRAND or sub FRAND — are not accurate or reliable benchmarks for determining FRAND rates and imposing them on others or elsewhere, including in bilateral licensing.[26]

Relatively low pool rates do not conflict with licensors' FRAND commitments. There's no reason why licensors shouldn't agree to pool rates for their SEPs that are below bilateral FRAND rates, so long as these low rates do not discriminate among licensees. But even if there is some discriminatory discounting for volume or reaching annual payment caps that brings average rates down, that wouldn't make maximum rates such as $0.20 per unit for the H.264/AVC pool a sufficiently high benchmark for bilateral licensing. On the contrary, discounting only takes average rates paid even lower.

Pool licensors join pools voluntarily. If an SEP owner believes pool rates are too low it need not join the pool. It's not discriminatory for an SEP owner to offer or charge bilateral FRAND rates that are higher than pool rates — whether or not the licensor is also offering the licensing of its SEPs through a pool.

This is a an extension of the same principle in some SSO patent policies that permits royalty-free licensing. Some licensors there are willing to forgo adequate and fair compensation in cash royalties. In many cases this is for another kind of quid pro quo — no in-licensing cost with cross-licensing.

[26] As a testifying expert witness in *TCL v Ericsson* a decade ago, I successfully rebutted a TCL expert's attempt to use patent pools rates in determining bilateral rates in our exchange of expert reports. His proposed method did not make it into direct testimony in court.

The UKHC's *Samsung v. ZTE Judgment considers that* so-called Non-FRAND factors can result in bilateral rates that are so-called sub-FRAND. However, there's no indication there that ZTE was ever in breach of its FRAND commitment by first agreeing to those rates, or by subsequently seeking higher rates after the non-FRAND factors had dissipated.

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