

Phoenix Sky Harbor International Airport (PHX)

Venue Network Intelligence Report

Rev 1, first issue, 2026-09-16

The newest passenger building at PHX is the weakest place measured, for every carrier. Over the footprint of the eight-gate concourse that opened in 2022 (Gates D11 to D18), the 5G medians are T-Mobile –102.0 dBm, Verizon –106.0 dBm, AT&T –94.0 dBm, and the healthy tile shares are T-Mobile 16%, Verizon 9%, AT&T 57%. Two of the three carriers fail more than four fifths of the tiles there. Across the two terminal footprints the picture is better and it is not uniform: over the Terminal 3 footprint T-Mobile leads (T-Mobile 92%, Verizon 82%, AT&T 69% healthy), and over the Terminal 4 footprint Verizon leads (T-Mobile 77%, Verizon 84%, AT&T 74%). Away from the buildings the three carriers are close together: the gate-area 5G medians span 1.9 dB (T-Mobile –89.7, Verizon –90.2, AT&T –91.5 dBm, n=110 gate points), all above the –95.0 dBm healthy line, and no gate point is weak on all three carriers. A gate-area figure is mostly an outdoor ramp reading at this venue (a median 21.6% of its tiles sit over a building), so this report names a leader only over a building footprint. The City of Phoenix is building an airport-wide cellular distributed antenna system through spring 2027, with AT&T, Verizon and T-Mobile as the carrier team, so this window is a baseline; which buildings already carried service on it is not held, so the baseline may blend served and unserved space. It measures 110 gate points, 117 venue points, 27,206 unique tiles (50,313 carrier-tile observations) and 26,948 usage tiles over 12 months.

Prepared by the Imagine Wireless Network Intelligence Platform

Data window: 2025-09-01 to 2026-08-31 · Issued: 2026-09-16 · Freshness: 16 days (within the 90-day policy)
Primary sources: Ookla Cell Analytics (per-carrier RF tiles; All Networks usage and density tiles) · OpenStreetMap gates, terminal polygons, and tenant points (pinned 2026-09-16)
Reference sources: City of Phoenix Aviation Department pages and board records · FAA enplanement statistics · Imagine knowledge graph (pinned snapshot) · public press
CONFIDENTIAL. Prepared for City of Phoenix Aviation Department stakeholder review



PHOTO. A Terminal 4 gate hold room, August 2023. Gate signage in the frame reads B7 and B8 to B14. · Photo: FASTILY, CC BY-SA 4.0, via Wikimedia Commons

Weakest building measured (all carriers)	5G over the two terminal footprints	Critical 5G signal (below –110 dBm)	Wi-Fi share of observed data
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Gates D11 to D18 (opened 2022): healthy on T-Mobile 16%, Verizon 9%, AT&T 57% of tiles over the footprint; medians T-Mobile -102.0, Verizon -106.0, AT&T -94.0 dBm (n=68 to 99 tiles per carrier)	Terminal 3: T-Mobile 92%, Verizon 82%, AT&T 69% · Terminal 4: T-Mobile 77%, Verizon 84%, AT&T 74% healthy (tiles over each footprint)	0 of 330 gate-carrier pairs. Gate-area 5G medians span 1.9 dB across the three carriers and all sit above -95.0 dBm	46.5% of observed MB on tiles in a concourse zone (n=14,851); 47.1% over the whole clip (n=26,948). Blends the public network with tenant, lounge, hotel and personal Wi-Fi; not attributable to any one network
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1. Executive readout

External benchmark, engaged with up front: Ookla's worldwide airport internet performance report for the first quarter of 2025 named PHX one of only three airports out of 48 that met the Federal Communications Commission benchmark of 100 Mbps download and 20 Mbps upload on both in-airport Wi-Fi and mobile (cited, not held). That is not in tension with this report. It measures throughput on the public networks; this report measures signal level and signal quality and carries no throughput or latency field at all (section 16). A venue can clear a download benchmark and still hold the gaps measured here, because a strong signal can be congested and a weak signal can be fast when few devices share it. The two readings answer different questions, and the one this report answers is where the radio conditions are weakest and which buildings they sit in.

Provenance legend: measured values compute from the Ookla exports at build time. Facts marked "held" come from a source document pinned in this build and checksummed in the verification bundle: the City of Phoenix Aviation Department page, the airport's history, facts, statistics and airline pages, the official Terminal 4 Level 3 gate map, the Terminal 3 modernization media kit, the City's cellular distributed antenna system (DAS) project page, the airport Wi-Fi page, and a Phoenix Aviation Advisory Board agenda packet. Facts marked "cited, not held" are public record that this build cites without holding a copy: Federal Aviation Administration (FAA) statistics, award studies, capital-program releases, and trade press. Facts marked "KG record" come from the pinned Imagine knowledge-graph snapshot. Section 16 defines every threshold and basis.

Phoenix Sky Harbor International Airport is operated by the City of Phoenix Aviation Department (held). Two terminals are in service: Terminal 3 (two concourses, the North Concourse with gates E1 to E10

and the South Concourse with gates F1 to F15, after a 590 million dollar modernization completed in 2020; all gates are common use) and Terminal 4 (eight concourses on Level 3, four on the north side carrying the A and B gates and four on the south side carrying the C and D gates. The official Level 3 map, revision October 2, 2022, assigns gates A1 to A30 and B1 to B22 to American Airlines, gates B23 to B28 to international carriers, and gates C1 to C19 and D1 to D8 to Southwest Airlines; gates D11 to D18 in the 2022 concourse are Southwest. Airlines that began service after that map, including China Airlines and STARLUX Airlines, are not assigned to a concourse in any held source); Terminal 2 closed on February 4, 2020 after 58 years of service and its site now holds aircraft parking positions, so two terminals carried the whole window (held). The knowledge graph records that the reconciled Airport DAS Master (2026-07-28) records PHX as DAS: yes, self-owned: no, neutral host: yes, operator a carrier consortium led by AT&T Mobility, contract term 2025 to 2035 at year precision, with the field note that installation of a new system is under way (KG record), and that a Phoenix Aviation Advisory Board agenda packet (2026-02-19) describes the Sky Harbor DAS as an AT&T revenue contract with construction running through spring 2027 across Terminals 3 and 4, the Rental Car Center, the garages, and the Sky Train stations, funded by the contractor on a revenue-share basis rather than as a capital line (KG record). This report is a baseline of the terminal area as measured in the window, before that system is complete. It measures 110 gates, 117 mapped venue points, 50,313 radio-frequency (RF) tiles, and 26,948 usage tiles over the 12-month window ending 2026-08-31.

T-Mobile: tied with Verizon at the gate-area 5G median; the highest healthy tile share over the Terminal 3 footprint; the weakest LTE layer of the three.

T-Mobile's venue 5G gate median is -89.7 dBm, 0.5 dB from Verizon's and inside the 1 dB noise floor, so the two are reported as tied. It holds healthy 5G reference signal received power (RSRP) at 81 of 110 gates (73.6%; 10 gates within 1 dB of the line), the fewest of the three, with 29 gates at risk and 0 critical. It holds the strongest gate-area 5G reading at 46 of 110 gates (Concourse A 9 of 28, Concourse B 25 of 30, Concourse C 6 of 16, Concourse D 0 of 16, Concourse E 0 of 10, Concourse F 6 of 10, counts), concentrated in Concourse B, and reports 5G on 92% of its on-airport tiles (a share that mixes deployment with the panel's handset mix, section 16, so it is not compared across carriers here). Its signal-quality median is +10.2 dB (61 of 110 gates healthy), the lowest of the three. Its lowest zone is Terminal 4 Concourse D (44% of tiles healthy) and over the Gates D11 to D18 footprint it is healthy on 16% of tiles (section 4.7). Its LTE layer is the weakest of the three (gate median -93.8 dBm, 60 of 110 gates healthy).

Verizon: tied with T-Mobile at the gate-area 5G median; healthy at the most gate points; the highest 5G signal-quality median, on a C-band-dominant footprint.

Verizon's 5G gate median is -90.2 dBm. It is healthy at 93 of 110 gates (84.5%; 6 gates within 1 dB of the line), the most of the three, with 17 gates at risk and 0 critical, and its 5G signal-quality median of +16.2 dB (103 of 110 gate points healthy) is the highest of the three, read with the band confound below. It holds the strongest gate-area 5G reading at 29 of 110 gates and reports 5G on 80% of its tiles. Its LTE layer is healthy (gate median -89.5 dBm, 86 of 110 gates). On the zone tile basis its highest share is Concourse B and its lowest zone is Terminal 4 Concourse D (54% healthy), and over the Gates D11 to D18 footprint it is healthy on 9% of tiles, the lowest reading in the building-masked table (section 4.7). Verizon is the weakest carrier at 33 of 110 ranked asymmetry gates.

AT&T: third at the gate-area 5G median by 1.4 dB; the strongest LTE reading at 64 of 110 gate points; the least weak of the three over the newest Terminal 4 building's footprint, which is the weakest building measured.

AT&T's 5G gate median is -91.5 dBm, 1.4 dB behind Verizon and 1.9 dB behind T-Mobile, above the healthy line. 88 of 110 gates (80.0%; 16 gates within 1 dB of the line) are healthy, 22 at risk, 0 critical. It reports 5G on 48% of its on-airport tiles, the smallest footprint; the other 52% carry LTE only. Its LTE layer is the strongest of the three: best-LTE at 64 of 110 gates, gate median -88.6 dBm, 102 of 110 gates healthy. Its 5G signal-quality median is +13.8 dB (98 of 110 gates healthy). AT&T holds the strongest gate-area 5G reading by count in Concourse A, Concourse C, Concourse D, Concourse E (Concourse A 10 of 28, Concourse C 7 of 16, Concourse D 11 of 16, Concourse E 6 of 10, counts), and over the Gates D11 to D18 footprint it is healthy on 57% of tiles against T-Mobile 16%, Verizon 9% (section 4.7). Its lowest zone is Terminal 3 Concourse F (South) (57% healthy). AT&T is the weakest carrier at 49 of 110 ranked asymmetry gates.

Per terminal.

Terminal 4 gate medians: T-Mobile -89.4, Verizon -90.3, AT&T -91.5 dBm (n=90 gates); healthy 5G at T-Mobile 61 of 90 gates (68%), Verizon 75 of 90 gates (83%), AT&T 73 of 90 gates (81%). Terminal 3 gate medians: T-Mobile -90.2, Verizon -89.2, AT&T -91.8 dBm (n=20 gates, below the 30-gate floor, counts only); healthy 5G at T-Mobile 20 of 20 gates (count), Verizon 18 of 20 gates (count), AT&T 15 of 20 gates (count). Over the OpenStreetMap building footprints (section 4.7): Terminal 3 T-Mobile leads (T-Mobile 92%, Verizon 82%, AT&T 69% healthy), Terminal 4 Verizon leads (T-Mobile 77%, Verizon 84%, AT&T 74%), Gates D11 to D18 AT&T leads (T-Mobile 16%, Verizon 9%, AT&T 57%).

How the order holds

Gate-median order: T-Mobile and Verizon tied, then AT&T. The T-Mobile-to-Verizon margin is 0.5 dB, under the 1 dB noise floor set in section 16, so this report never ranks one above the other on that figure; T-Mobile is listed first only because its median is numerically higher. AT&T trails Verizon by 1.4 dB, at or above the floor, so it is ranked third on the gate median. On the healthy-gate count the order is Verizon, AT&T, T-Mobile (93, 88, 81 of 110); on signal quality it is Verizon, AT&T, T-Mobile. All three medians sit above the -95 dBm line. The order reproduces from the tile export alone.

Why the baseline matters

The City of Phoenix runs an airport-wide cellular distributed antenna system (DAS) program that covers Terminals 3 and 4, the Rental Car Center, the parking garages, the cell-phone and taxi lots, the PHX Sky Train stations and adjacent aviation buildings, with AT&T, Verizon and T-Mobile named as the carrier team (held). The City's project page records construction and installation as ongoing and continuing through spring 2027, so the system was being built across the whole analysis window (held). The City procured it as revenue contract solicitation AVN RCS 21-008, issued in December 2020 with responses due March 2, 2021, for a third party to design, install, operate, manage and maintain a turnkey DAS for all wireless service providers (held). The reconciled Airport DAS Master (2026-07-28) records PHX as DAS: yes, self-owned: no, neutral host: yes, operator a carrier consortium led by AT&T Mobility, contract term 2025 to 2035 at year precision, with the field note that installation of a new system is under way, and a Phoenix Aviation Advisory Board agenda packet (2026-02-19) describes the Sky Harbor DAS as an AT&T revenue contract with construction running through spring 2027 across Terminals 3 and 4, the Rental Car Center, the garages, and the Sky Train stations, funded by the contractor on a revenue-share basis rather than as a capital line (KG record). The public record names the carrier team and the campus-wide scope, but it does not say which buildings carry service on the new system in this window, or which bands each carrier has on it, so nothing in this report attributes any carrier's reading to the DAS. What the record does establish is that the venue is mid-installation: this window is the baseline reading, and section 14 writes the per-building criteria the after reading is measured against.

What the pattern is consistent with (inference)

Band first. Verizon's strongest-serving 5G band is NR3700 on 74% of its 9,798 band-reporting 5G tiles; AT&T's is NR3700 on 82% of 1,366 (a smaller cell-resolved sample, section 9.1); T-Mobile's is NR2500 on 63% of 15,875. Three healthy gate medians over low-rise, wide-apron concourses is the expected macro propagation picture for this venue: the 80 m gate join reaches apron and roadway as much as building. The building-masked view is where the carriers separate: over the Gates D11 to D18 footprint AT&T is healthy on 57% of tiles against 9% for Verizon and 16% for T-Mobile, and in Terminal 3 T-Mobile is healthy on 92% against 82% and 69%. A per-building split of that shape is consistent with in-building sources that serve one carrier and not the

others, which is what a DAS in phased installation would produce, and equally with macro-site geometry. The export cannot separate the two, and this report does not state that any carrier is on any in-building system.

How to read the order

Every ranking in this report is signal-layer: RSRP and signal-to-interference-plus-noise ratio (SINR) from an Android crowdsource panel. The export contains no throughput or latency, so it measures where signal is. It does not measure whether a call or app fails, and a strong-signal network can still be congested. The panel's composition differs by carrier and is Android-only, and handset vintage decides which devices can report C-band 5G (Verizon, AT&T) versus n41 (T-Mobile) at all, so cross-carrier comparisons inherit a device-population bias the export cannot correct. Nothing in this report is measured indoors; gate and tenant values are tiles within 80 m of a point (section 16).

2. Venue snapshot and asset inventory

Element	Value	Notes
Airport / IATA / ICAO	Phoenix Sky Harbor International Airport / PHX / KPHX	FAA large hub (cited, not held); 51,618,649 total passengers in 2025, -1.4% versus 2024 (airport statistics page, held; passengers in both directions, a different basis from the FAA enplanement figure used in section 12)
Operating authority	City of Phoenix Aviation Department	A municipal department run as an enterprise fund of the City of Phoenix; major contracts and leases go to City Council on the recommendation of the nine-member Phoenix Aviation Advisory Board, and the airport states that no tax dollars fund its capital program. Terminal 4 and Terminal 3 are both operated directly by the department, with no private terminal lessee (held)
Terminals analyzed	2	Terminal 3: Advanced Air, Air Canada, Alaska Airlines, Allegiant, Breeze Airways, Delta Air Lines, Denver Air Connection, Frontier Airlines, Hawaiian Airlines, JetBlue Airways, Porter Airlines, Southern Airways Express, Sun Country Airlines, and United Airlines; two concourses, the North Concourse with gates E1 to E10 and the South Concourse with gates F1 to F15, after a 590 million dollar modernization completed in 2020; all gates are common use. Terminal 4: Aeromexico, Air France, American Airlines, British Airways, China Airlines, Contour Airlines, Southwest Airlines, STARLUX Airlines, Volaris, and WestJet; eight concourses on Level 3, four on the north side carrying the A and B gates and four on the south side carrying the C and D gates. The official Level 3 map, revision October 2, 2022, assigns gates A1 to A30 and B1 to B22 to American Airlines, gates B23 to B28 to international carriers, and gates C1 to C19 and D1 to D8 to Southwest Airlines; gates D11 to D18 in the 2022 concourse are Southwest. Airlines that began service after that map, including China Airlines and STARLUX Airlines, are not assigned to a concourse in any held source. Terminal 2 closed on February 4, 2020 after 58 years of service and its site now holds aircraft parking positions, so two terminals carried the whole window (all held)
Zones for tile assignment	6	Concourse A (Terminal 4) · Concourse B (Terminal 4) · Concourse C (Terminal 4) · Concourse D (Terminal 4) · Concourse E (Terminal 3) · Concourse F (Terminal 3) (nearest gate or tenant point within 500 m)
Gate points analyzed	110	Concourse A 28, Concourse B 30, Concourse C 16, Concourse D 16, Concourse E 10, Concourse F 10 (OpenStreetMap inventory pinned 2026-09-16, zoned by the concourse letter in the gate ref and checked against the terminal footprint). the official Terminal 4 Level 3 map, revision October 2, 2022, publishes gates A1 to A30, B1 to B28 with B23 to B28 international, C1 to C9 and C11 to C19, D1 to D8, and the airport's history page adds gates D11 to D18 in the 2022 concourse; Terminal 3 publishes gates E1 to E10 in the North Concourse and F1 to F15 in the South Concourse, with

		the terminal total stated as 25 gates in the 2020 modernization record and as 20 in a 2025 City release that adds six more (held). The measured inventory is smaller than the published one and the reconciliation is tabulated below; 1 further OpenStreetMap node on the airport carries the tag but no concourse letter and number (ref 'D', OpenStreetMap id 3081169829) and is excluded from every figure in this report
Mapped venue points	117	50 food · 33 retail · 21 transport_admin · 7 services · 3 lounge · 3 other. Zone attribution: A 23, B 27, C 14, D 8, E 12, F 16, outside zones 17. OpenStreetMap capture, pinned 2026-09-16 (transcribed points only). 132 points were captured and 15 were excluded before analysis because they are not venue points: named views of distant landmarks, public art, building fabric, airfield and tower infrastructure, and a cargo operator facility. 6 points were refiled where the capture's category contradicted the point's function, including three airline and card-issuer lounges captured as other. Every call is listed with its reason in the audit dossier
Carriers measured	3	T-Mobile · Verizon · AT&T (50,313 RF tiles; 26,948 All Networks usage tiles)
In-building cellular	City airport-wide cellular DAS program, under construction through spring 2027; carrier team AT&T, Verizon and T-Mobile	The City of Phoenix runs an airport-wide cellular distributed antenna system (DAS) program that covers Terminals 3 and 4, the Rental Car Center, the parking garages, the cell-phone and taxi lots, the PHX Sky Train stations and adjacent aviation buildings, with AT&T, Verizon and T-Mobile named as the carrier team; the City's project page records construction and installation as ongoing and continuing through spring 2027, so the system was being built across the whole analysis window; the City procured it as revenue contract solicitation AVN RCS 21-008, issued in December 2020 with responses due March 2, 2021, for a third party to design, install, operate, manage and maintain a turnkey DAS for all wireless service providers; the solicitation required that legacy in-building systems, repeaters, bi-directional amplifiers and standalone carrier systems inside the DAS coverage area be decommissioned once the new system carries service (all held). The solicitation's coverage exhibit names Terminal 3 levels 1 to 4, the North and South concourses, the curbside and the ramp areas outside each gate, and the same exhibit names Terminal 4 levels 1 to 4 including the boarding bridges, the seven concourses that existed then, and the concourse that was under construction and opened in June 2022 (KG record). The reconciled Airport DAS Master (2026-07-28) records PHX as DAS: yes, self-owned: no, neutral host: yes, operator a carrier consortium led by AT&T Mobility, contract term 2025 to 2035 at year precision, with the field note that installation of a new system is under way; a Phoenix Aviation Advisory Board agenda packet (2026-02-19) describes the Sky Harbor DAS as an AT&T revenue contract with construction running through spring 2027 across Terminals 3 and 4, the Rental Car Center, the garages, and the Sky Train stations, funded by the contractor on a revenue-share basis rather than as a capital line (KG record). Which buildings carry service on the new system in this window, and which bands each carrier has on it, are open items (section 8)
Knowledge-graph coverage	Profile, DAS and Boingo deployments, RFP and board evidence	Profile: large hub (the graph also holds an enplanement count with no year recorded; it is not published here, because the dated FAA calendar-2024 figure in section 12 is the report's single enplanement basis). Deployments: AT&T Mobility DAS; Boingo Wireless Wi-Fi; Boingo Wireless Passpoint. Contracts query not available; no leadership rows (KG record)

Public Wi-Fi	SSID Free PHX Boingo WiFi	Boingo Wireless under City of Phoenix contract 152010, a revenue contract covering the public areas of both terminals and the Rental Car Center; the City extended it through July 31, 2026 and then month to month while it transitions the service in house (held); the City reports more than 37,000 users a day on the public Wi-Fi and more than 13.7 million users across 2024 (held); the graph also holds active Boingo Wireless Wi-Fi and Passpoint deployments (KG record)
Capital program	a new west terminal between Terminal 3 and Taxiway U is in planning, the first new terminal since 1990, with construction indicated for 2029 to 2033 and an opening in 2033 at a figure the City has put at around 4 billion dollars; an 84.3 million dollar federal grant announced in January 2025 funds the new Taxiway U bridge	the 310 million dollar Terminal 4 eighth concourse, eight gates for Southwest Airlines, opened to the public on June 20, 2022; the 590 million dollar Terminal 3 modernization finished in 2020, and a further concourse on the north side of Terminal 3 is under construction for six more gates at about 368 million dollars including enabling work, targeted to open in 2027; an expanded lower-level gate area in the Terminal 3 South Concourse opened on July 22, 2026, inside this window; stage 2 of the PHX Sky Train, a 745 million dollar extension to the Rental Car Center with new 24th Street and Rental Car Center stations, opened on December 20, 2022 and removed 84 rental-car shuttle buses from the roadways (cited, not held)
Ground transport	the PHX Sky Train, a free 24-hour automated people mover with six stations at 44th Street and Washington, East Economy, Terminal 4, Terminal 3, 24th Street and the Rental Car Center	Context only (cited, not held)
Recognition	third among mega airports in the J.D. Power North America Airport Satisfaction Study in both 2025 and 2026, and top-ten placings for shopping, dining and large airports in the 2025 USA Today 10Best readers' choice awards	Context only (cited, not held)



*PHOTO. In-flight view over Phoenix Sky Harbor, May 2025. Illustrative only; individual terminals are not distinguishable in this frame. ·
Photo: Designism, CCO, via Wikimedia Commons*

How to read the measurement

Every cellular number in this report is an aggregate of crowdsourced background scans from consumer Android devices (about 3% of handsets; iOS devices are not sampled), binned by Ookla to map tiles of about 9 m by 11 m, then joined to gate and tenant points. The numbers describe where devices were over a 12-month window. They are not drive-test measurements. Every n counts tiles, and every table carries its n so thin cells are visible.

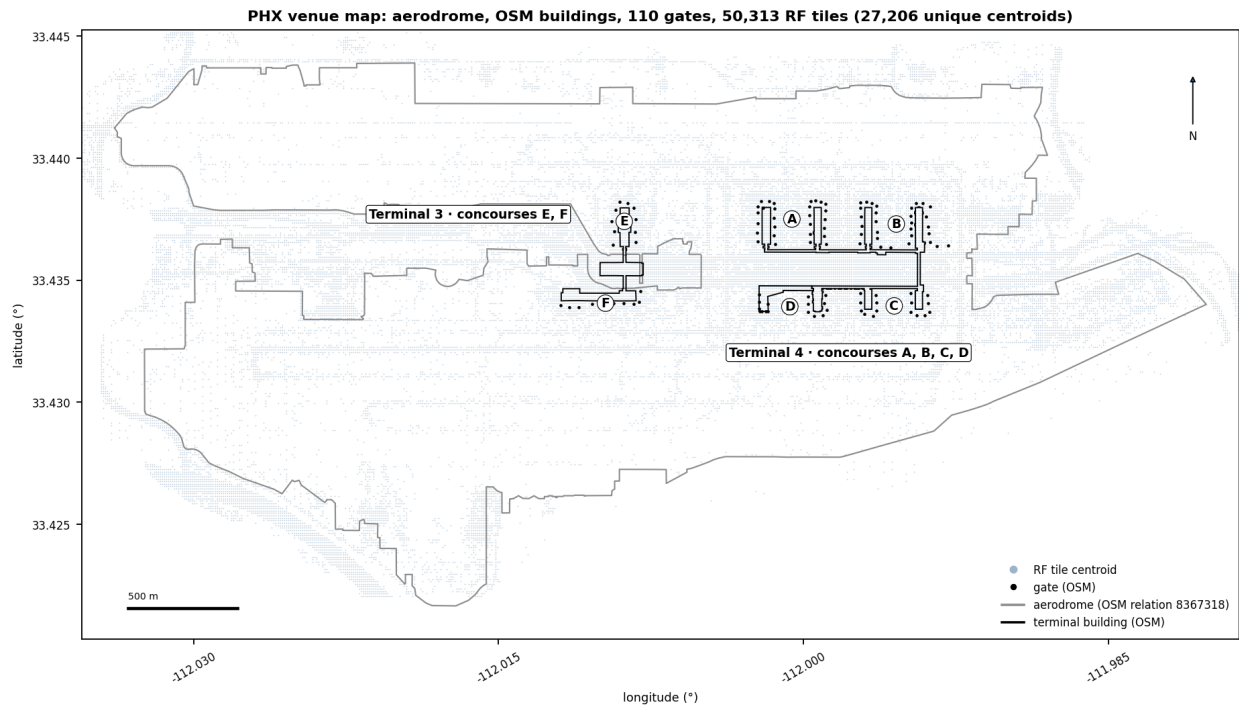


FIG. 1. Venue map: aerodrome outline, OSM terminal buildings, 110 gates with concourse letters, and the 50,313 on-airport RF tile centroids. North up; scale bar in meters. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31



PHOTO. PHX Sky Train at the Terminal 4 station, October 2023. The Sky Train stations are named in the DAS coverage exhibit. · Photo: Hunter Trick (TrickHunter), CC BY-SA 4.0, via Wikimedia Commons

2.1 Measured gate inventory against the published gate list

Concourse	Published gates	Measured points	Published but not measured	Measured but not on the published list
Concourse A	30	28	A15, A16	none

Concourse B	28	30	B15	B1A, B15A, B15B
Concourse C	18	16	C5, C17	none
Concourse D	16	16	none	none
Concourse E	10	10	none	none
Concourse F	15	10	F11, F12, F13, F14, F15	none

The analysis uses the 110 measured points. Of the 117 gates on the published lists, 10 have no measured point in the pinned OpenStreetMap inventory, so a per-concourse count in this report is a count of MEASURED points and is written that way throughout. Points carried in OpenStreetMap that are not on the published list (the B1A, B15A and B15B hardstands) are kept and labelled with their OpenStreetMap ref. Aligning the two lists is a request to the Aviation Department (section 15), and no gate-named criterion in section 14 should be adopted before that is done.

3. Carrier findings

3.0 Carrier summary

Carrier	5G RSRP median (dBm)	5G SINR median (dB)	LTE RSRP median (dBm)	Healthy 5G gates	n (gates / RF tiles)
T-Mobile	-89.7	+10.2	-93.8	81 of 110	110 / 18,918
Verizon	-90.2	+16.2	-89.5	93 of 110	110 / 18,513
AT&T	-91.5	+13.8	-88.6	88 of 110	110 / 12,882

5G footprint and conditional medians (tile basis). Each 5G median is conditional on the tile reporting a 5G reading; the last column combines presence and level.

Carrier	5G footprint (% of tiles)	5G RSRP median over reporting tiles (dBm)	LTE RSRP median (dBm)	LTE-only tiles (%)	5G present and healthy (% of all tiles)	n (tiles)
T-Mobile	92%	-90.0	-93.0	7%	66%	18,918
Verizon	80%	-90.0	-91.0	19%	57%	18,513
AT&T	48%	-92.0	-92.0	49%	29%	12,882

PHX: venue-wide carrier medians (110 gates)

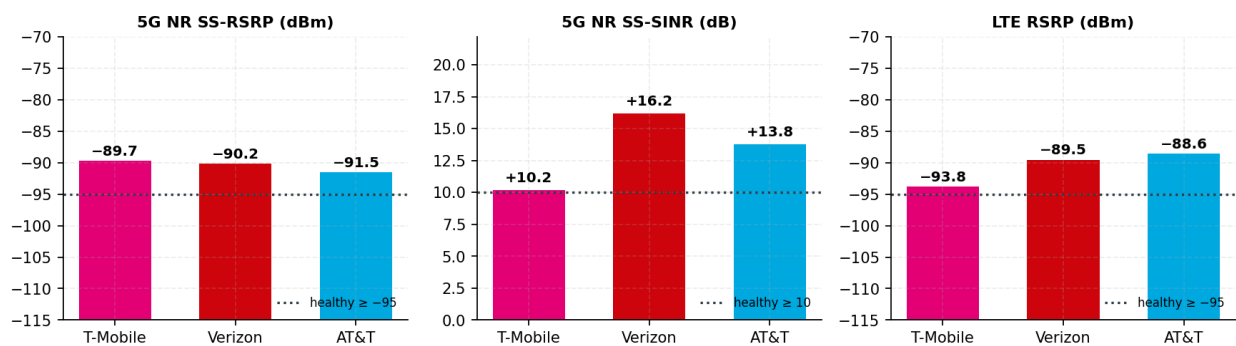


FIG. 2. Venue medians across 110 gates against the locked threshold ladder (section 16). The two received-power panels draw bars from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

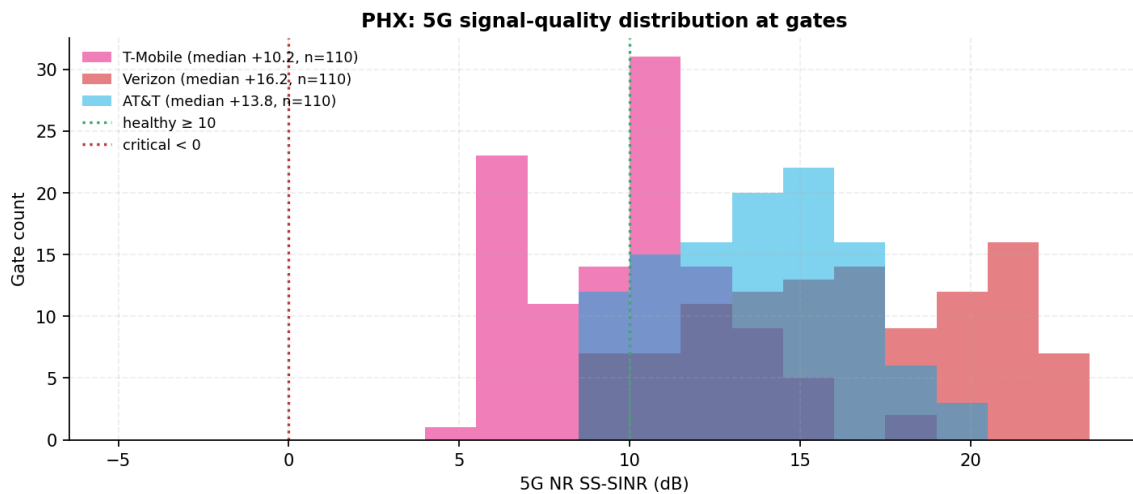


FIG. 3. SINR distribution per carrier at gate-point level. Read across carriers with care: SINR depends on the serving band's bandwidth and on neighbour loading, and these carriers sit on different bands here (section 9.1 gives each carrier's strongest-serving band mix), so a cross-carrier SINR gap is not a like-for-like comparison. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Cross-carrier SINR comparison, stated once and applied throughout: the three carriers are not on the same spectrum at this venue. Section 9.1 shows the strongest-serving band mix, and a carrier whose 5G sits mostly on a wide mid-band channel will not produce an SINR distribution comparable to one sitting mostly on a different band with different neighbour loading and a different receiver population. Within a carrier, SINR across zones is a fair comparison and is used that way; across carriers it is context, not a ranking.

PHX terminal area, 5G NR RSRP by tile in the locked coverage classes (2025-09-01 to 2026-08-31)

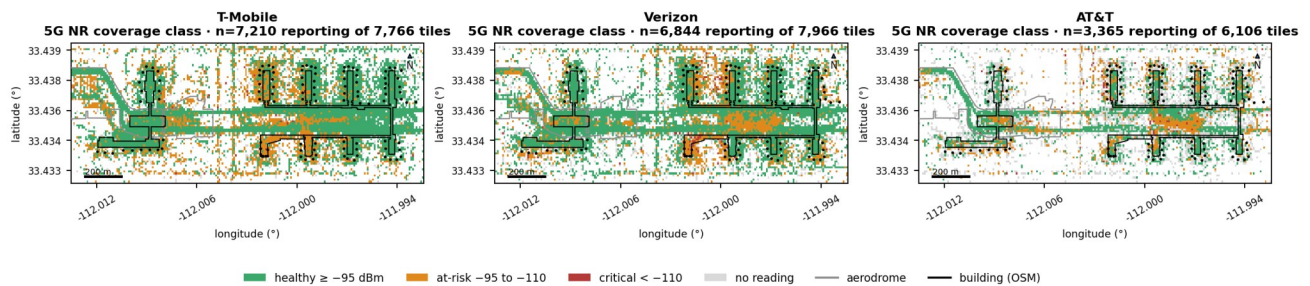


FIG. 4. Terminal-area map of 5G NR RSRP by tile and carrier, colored by the locked coverage class. Grey tiles carry no 5G reading. Each tile is about 9 m by 11 m; n is the tile count per panel. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

3.1 T-Mobile results

T-Mobile is tied with Verizon at the top of the 5G gate median (-89.7 dBm, 0.5 dB apart). 81 of 110 gates (73.6%; 10 gates within 1 dB of the line) are healthy, 29 at risk, 0 critical; on that count it trails Verizon (93) and AT&T (88). It is the strongest 5G reading at 46 of 110 gates, 25 of them in Concourse B (T-Mobile 25, Verizon 4, AT&T 1; $n=30$ gates). SINR is $+10.2$ dB at the median (61 of 110 gates healthy), the lowest of the three. It reports 5G on 92% of its on-airport tiles (17,312 of 18,918); Verizon reports 5G on 80% and AT&T on 48%. Its LTE layer is the weakest of the three: LTE gate median -93.8 dBm, healthy at 60 of 110 gates, strongest LTE reading at 10 gates.

On the tile basis its own highest zone share is Concourse B at 92% of tiles healthy and its lowest is Concourse D at 44%. Healthy tile shares by zone: Concourse A 60%, Concourse B 92%, Concourse C

77%, Concourse D 44%, Concourse E 67%, Concourse F 58% ($n \geq 994$ tiles per zone). Its lowest zone is Terminal 4 Concourse D. Inside the pinned building footprints (section 4.7) it is healthy on 92% of Terminal 3 tiles, 77% of Terminal 4 tiles, and 16% of the Gates D11 to D18 building. FIG. 4 shows the pattern: green along Concourse B and Terminal 3, amber over the east end of Terminal 4. Its terminal-vs-periphery proxy is -1.0 dB (section 5.2). T-Mobile is the weakest carrier at 28 of 110 ranked asymmetry gates.

What the T-Mobile readings show

Tied with Verizon at the gate-area 5G median, healthy at the fewest gate points of the three (81 of 110), and the lowest 5G SINR median ($+10.2$ dB, on a different band mix from the other two). Its strongest place is over the Terminal 3 footprint (92% of tiles healthy) and its weakest is over the Gates D11 to D18 footprint (16%, median -102.0 dBm). On the zone basis its lowest concourse is Concourse D. A re-measurement over the Gates D11 to D18 footprint is the clearest test of whether the new system carries T-Mobile there.

3.2 Verizon results

Verizon's 5G gate median is -90.2 dBm, tied with T-Mobile (0.5 dB apart) and 1.4 dB ahead of AT&T. 93 of 110 gates (84.5%; 6 gates within 1 dB of the line) are healthy, the most of the three, with 17 at risk and 0 critical. Its 5G signal quality is the best of the three: SINR median $+16.2$ dB, healthy at 103 of 110 gates. It is the strongest 5G reading at 29 of 110 gates and reports 5G on 80% of its on-airport tiles (14,734 of 18,513). Its LTE layer is healthy: LTE gate median -89.5 dBm (86 of 110 gates), strongest LTE reading at 36 gates.

On the tile basis its own highest zone share is Concourse B at 78% of tiles healthy and its lowest is Concourse D at 54%. Healthy tile shares by zone: Concourse A 63%, Concourse B 78%, Concourse C 66%, Concourse D 54%, Concourse E 72%, Concourse F 75% ($n \geq 915$ tiles per zone). Its lowest zone is Terminal 4 Concourse D. Inside the footprints Verizon is healthy on 84% of Terminal 4 tiles and 82% of Terminal 3 tiles, but on 9% of the Gates D11 to D18 building (median -106.0 dBm, $n=98$), the lowest cell in the building-masked table (section 4.7). Verizon's 5G is C-band (NR3700 on 74% of its band-reporting 5G tiles), so a healthy gate median with one weak building is consistent with macro C-band that reaches the apron-side gates and not the interior of the newest building; whether that building has a live in-building source for any carrier is a Recommendation 1 question. Its terminal-vs-periphery proxy is $+2.0$ dB (section 5.2). Verizon is the weakest carrier at 33 of 110 ranked asymmetry gates.

What the Verizon readings show

Tied with T-Mobile at the gate-area 5G median, healthy at the most gate points (93 of 110), and the highest 5G SINR median of the three ($+16.2$ dB, on a different band mix from the other two, so that gap is context and not a ranking). Its one weak place is over the Gates D11 to D18 footprint, where it is healthy on 9% of tiles with a median of -106.0 dBm, the lowest cell in the building-masked table. That footprint is therefore where a re-measurement would show the largest change for Verizon if the new system carries service there.

3.3 AT&T results

AT&T's 5G gate median is -91.5 dBm, 1.4 dB behind Verizon and 1.9 dB behind T-Mobile, and above the healthy line. 88 of 110 gates (80.0%; 16 gates within 1 dB of the line) are healthy, 22 at risk, 0 critical. SINR is $+13.8$ dB at the median (98 of 110 gates healthy). It is the strongest 5G reading at 35 of 110 gates, leading the count in Concourse A, Concourse C, Concourse D, Concourse E (Concourse A AT&T 10, T-Mobile 9, Verizon 9, $n=28$; Concourse C AT&T 7, T-Mobile 6, Verizon 3, $n=16$; Concourse D AT&T 11, Verizon 5, $n=16$; Concourse E AT&T 6, Verizon 4, $n=10$; counts). AT&T is the weakest carrier at 49 of 110 ranked asymmetry gates.

The 5G footprint is the smallest of the three: AT&T reports 5G on 48% of its on-airport tiles (6,179 of 12,882); tiles with an LTE reading but no 5G reading are 49% of its tiles. AT&T's LTE layer carries its own service well here: strongest LTE reading at 64 of 110 gates, LTE gate median -88.6 dBm, healthy at 102 of 110 gates. On the tile basis its own highest zone share is Concourse E at 73% of tiles healthy and its lowest is Concourse F at 57%. Healthy tile shares by zone: Concourse A 58%, Concourse B 58%, Concourse C 71%, Concourse D 67%, Concourse E 73%, Concourse F 57% ($n \geq 440$ tiles per zone); its lowest zone is Terminal 3 Concourse F (South). Inside the footprints AT&T is healthy on 57% of the Gates D11 to D18 building (median -94.0 dBm, $n=68$), the highest of the three there, against 74% of Terminal 4 and 69% of Terminal 3, the lowest of the three in both. AT&T's 5G is NR3700 on 82% of 1,366 band-reporting 5G tiles (a smaller cell-resolved sample). On FIG. 4, AT&T's panel shows green over the east end of Terminal 4 and amber over Terminal 3 and Concourse B; the building-masked view (section 4.7) quantifies it per building.

What the AT&T readings show

Third at the gate-area 5G median by 1.4 dB, and the strongest LTE layer of the three (64 of 110 gate points, median -88.6 dBm). Its 5G reports on 48% of its tiles, the smallest share of the three, which this report does not read as a coverage figure because the share is confounded by the panel's handset mix (section 16). Over the Gates D11 to D18 footprint it is the least weak of the three (57% of tiles healthy, median -94.0 dBm), in a building where the other two are at 16% and 9%; over the Terminal 3 and Terminal 4 footprints it is the weakest of the three (69% and 74%). The knowledge graph names AT&T Mobility as the lead of the DAS carrier consortium (KG record); whether that explains the pattern is a Recommendation 1 question, not a finding here.

3.4 5G footprint and coverage-band attachment

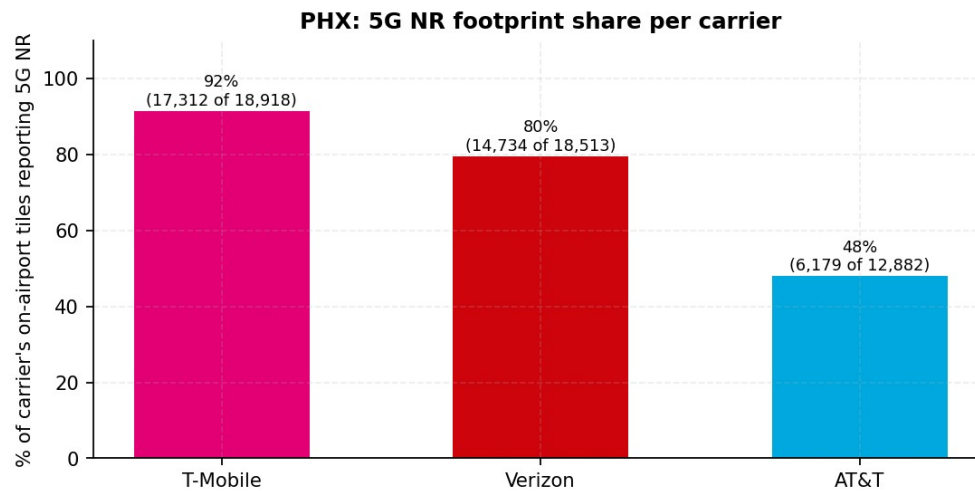


FIG. 5. Share of each carrier's on-airport tiles that report a 5G NR reading (5G footprint). *CONFOUNDED*: a tile reports 5G only if a handset in the panel could report that carrier's 5G band, so this share mixes the carrier's 5G deployment with the mix of 5G-capable handsets that carrier has in an Android crowdsourced panel. It is not a coverage measurement and the carriers are not comparable on it (section 16).

Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

PHX: sub-1 GHz LTE reliance per carrier (higher = more coverage-band dependence)

Carrier	n (tiles)	Mean percent low band	Tiles above zero	p90 percent low band
T-Mobile	18,763	1.7%	6%	0%
Verizon	18,271	12.7%	36%	50%
AT&T	12,558	14.2%	39%	50%

FIG. 6. LTE percent-low-band per carrier: mean, share of tiles above zero, and p90. Higher means more attachment to sub-1 GHz coverage bands. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

The percent-low-band statistic describes LTE coverage-band attachment. A tile that attaches to sub-1 GHz spectrum is using a coverage-grade band, which propagation, carrier idle-mode priorities, and site geometry all drive. T-Mobile mean 1.7% (tiles above zero: 6% of n=18,763; p90 0%) · Verizon mean 12.7% (tiles above zero: 36% of n=18,271; p90 50%) · AT&T mean 14.2% (tiles above zero: 39% of n=12,558; p90 50%).

The LTE metric does not see 5G low band. On the 5G side: T-Mobile: NR600 on 666 tiles, 4.2% of its 15,875 band-reporting NR tiles. Verizon: NR600 on 1 tiles, 0.0% of its 9,798 band-reporting NR tiles, NR850 on 723 tiles, 7.4% of its 9,798 band-reporting NR tiles. AT&T: NR600 on 1 tiles, 0.1% of its 1,366 band-reporting NR tiles, NR850 on 12 tiles, 0.9% of its 1,366 band-reporting NR tiles. Section 9.1 lists the bands.

3.5 RSRQ, channel quality (CQI), and optimization priority

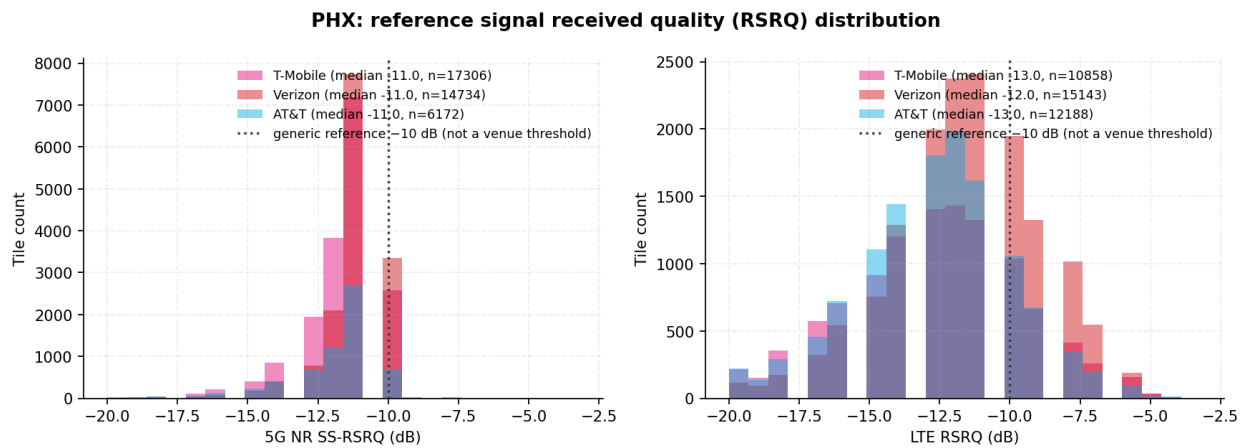


FIG. 7. 5G NR and LTE reference signal received quality (RSRQ) distributions per carrier. The dotted line is a GENERIC industry reference, not a threshold specified for this venue, and every carrier's median sits below it here; medians in this range are ordinary for a loaded network and this is not a failure call. Read with SINR. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

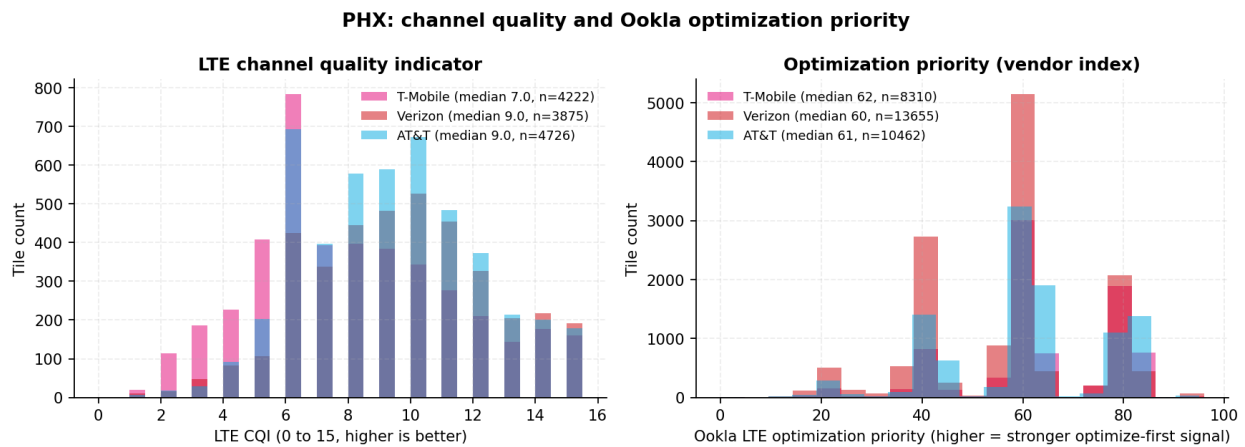


FIG. 8. LTE channel quality indicator (CQI) distribution and Ookla's LTE optimization priority index (vendor layer). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

RSRQ medians: T-Mobile NR -11.0 / LTE -13.0 dB; Verizon NR -11.0 / LTE -12.0 dB; AT&T NR -11.0 / LTE -13.0 dB. Every carrier medians sit below the -10 dB line on both technologies. Medians of -11 to -14 dB are ordinary loaded-network values, and the line is a generic reference, not a venue-specified threshold, so this is a venue-wide observation to read together with SINR, not a failure call. RSRQ degrades as subframe utilization rises, so a weak RSRQ on a strong-RSRP network is consistent with a loaded serving layer. This is an inference; the export carries no load field (section 16).

CQI medians: T-Mobile median 7.0 (n=4,222); Verizon median 9.0 (n=3,875); AT&T median 9.0 (n=4,726). CQI is the closest throughput proxy in an export that carries no throughput fields. Ookla's LTE optimization priority is the vendor's own index for tiles where signal is strong but quality is poor. Venue medians: T-Mobile median 62 (n=8,310); Verizon median 60 (n=13,655); AT&T median 61 (n=10,462). The discriminating signal is in the distribution tails.

3.6 Serving-cell volatility (handover-churn proxy)

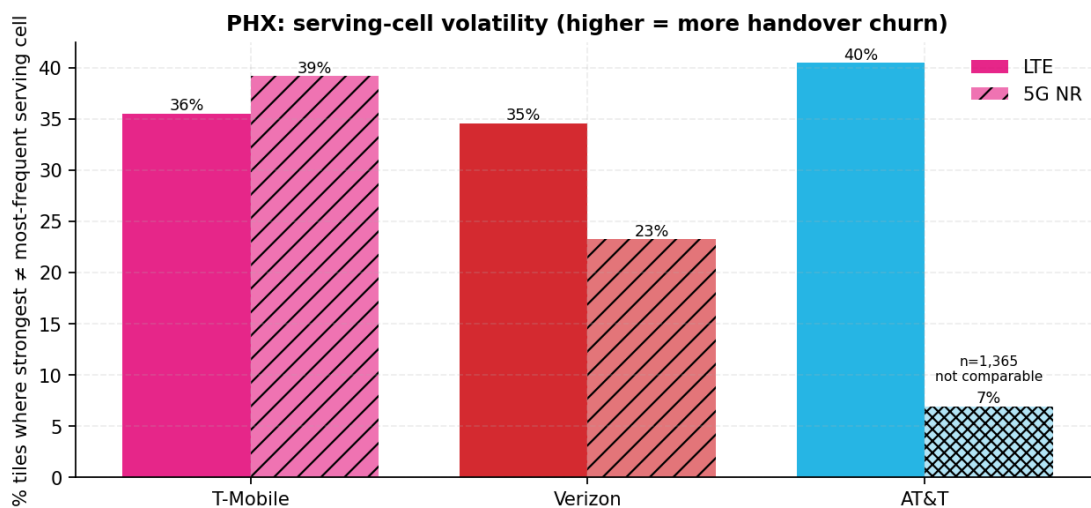


FIG. 9. Share of tiles where the strongest observed cell differs from the most-frequent serving cell. Proxy for handover instability and dominance conflict. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Where the strongest cell at a tile is not the most-frequent serving cell, the network is handing over between competing cells. Measured churn: T-Mobile LTE 36% (n=10,872) / 5G 39% (n=15,874); Verizon LTE 35% (n=15,156) / 5G 23% (n=9,793); AT&T LTE 40% (n=12,214) / 5G 7% (n=1,365). Cell, PCI, and band fields populate only where Ookla resolved a serving cell, which is why AT&T's 5G n is 1,365 here against 6,179 for RSRP (field population table, section 16). AT&T's 5G churn therefore rests on 1,365 cell-resolved tiles and is not compared with the other two (hatched bar). Churn blends macro-sector overlap with any in-building system's handoff to the macro layer. This is a proxy; the export carries no handover trace.

4. The view by concourse zone

Concourse zone gate counts (Concourse A 28, Concourse B 30, Concourse C 16, Concourse D 16, Concourse E 10, Concourse F 10): only Concourse B clears the 30-point floor on the gate basis, so its gate shares are shown as percentages; every other concourse's gate tallies appear as counts and are never ranked. For one consistent basis, every zone comparison in this section runs on the tile basis: a tile belongs to the zone of its nearest gate or tenant point within 500 m, which gives hundreds of tiles per carrier per zone. Zones are the six concourses (A to D at Terminal 4, E and F at Terminal 3), from the concourse letter in each gate ref.

4.1 Healthy share and median RSRP by zone

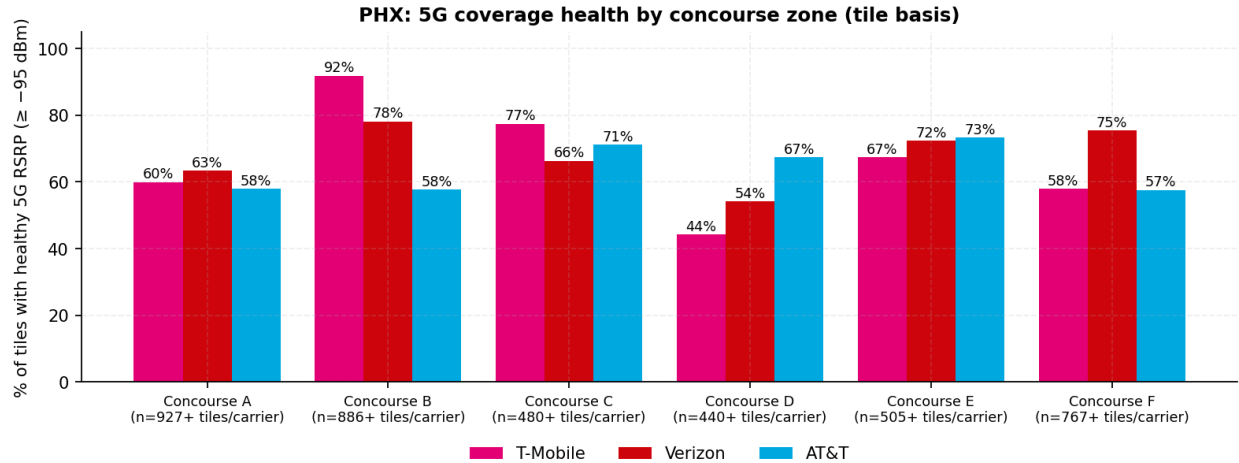


FIG. 10. Share of zone tiles with healthy 5G RSRP by carrier (tile basis; minimum n per carrier on the axis). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

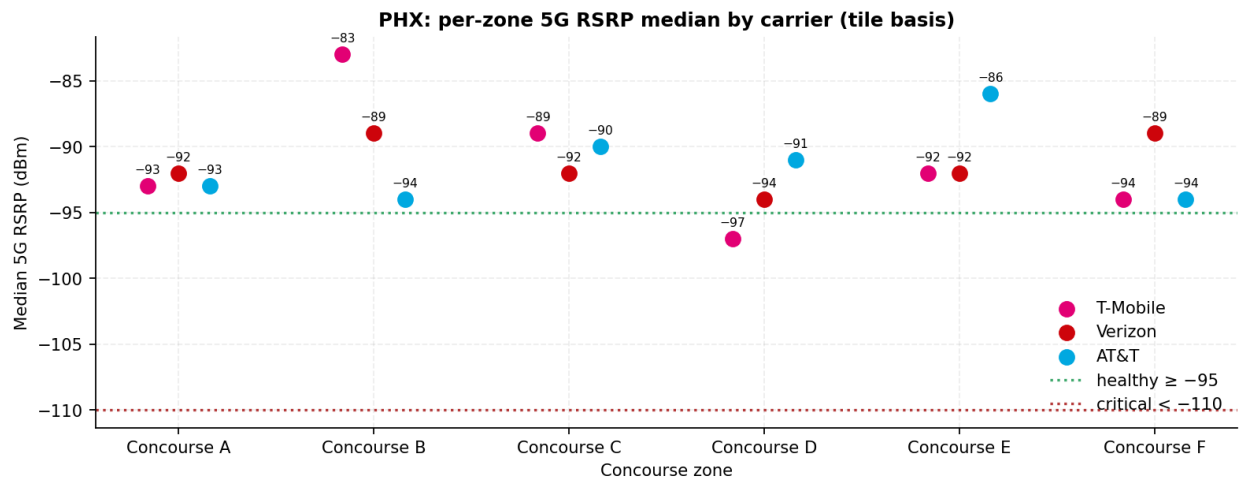


FIG. 11. Per-zone median 5G RSRP per carrier (tile basis). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

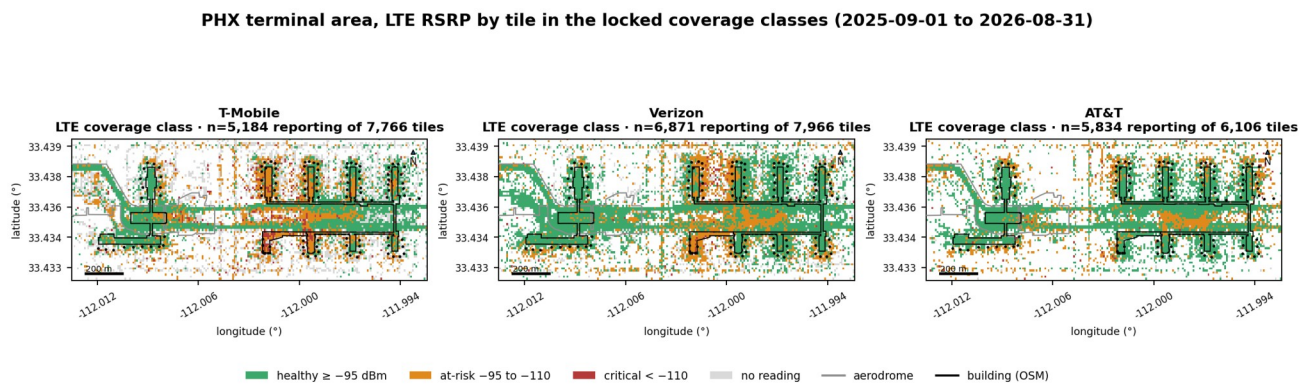


FIG. 12. Terminal-area map of LTE RSRP by tile and carrier, colored by the locked coverage class. Grey tiles carry no LTE reading. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Zone	T-Mobile healthy tiles	Verizon healthy tiles	AT&T healthy tiles	Median 5G RSRP (dBm)
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Concourse A (T4)	60% (n=1,957)	63% (n=1,865)	58% (n=927)	T-Mobile -93.0 / Verizon -92.0 / AT&T -93.0
Concourse B (T4)	92% (n=2,492)	78% (n=1,818)	58% (n=886)	T-Mobile -83.0 / Verizon -89.0 / AT&T -94.0
Concourse C (T4)	77% (n=1,258)	66% (n=1,172)	71% (n=480)	T-Mobile -89.0 / Verizon -92.0 / AT&T -90.0
Concourse D (T4)	44% (n=994)	54% (n=915)	67% (n=440)	T-Mobile -97.0 / Verizon -94.0 / AT&T -91.0
Concourse E (T3)	67% (n=1,267)	72% (n=1,052)	73% (n=505)	T-Mobile -92.0 / Verizon -92.0 / AT&T -86.0
Concourse F (T3)	58% (n=2,064)	75% (n=2,051)	57% (n=767)	T-Mobile -94.0 / Verizon -89.0 / AT&T -94.0

These zone figures are NOT a leader board. A concourse zone is the set of tiles nearest that concourse's gate and venue points within 500 m, so it holds apron, taxiway and roadway as well as building, and section 4.7 carries the only basis on which this report names a leader. Read the zone rows as the spread within a zone: the widest carrier-to-carrier gap in healthy tile share is Concourse B at 34 points, and the narrowest is Concourse A at 5 points. Lowest zone per carrier on the healthy tile share: T-Mobile in Concourse D (44%), Verizon in Concourse D (54%), AT&T in Concourse F (57%). The lowest zone differs by carrier.

4.2 Coverage class and PCI diversity

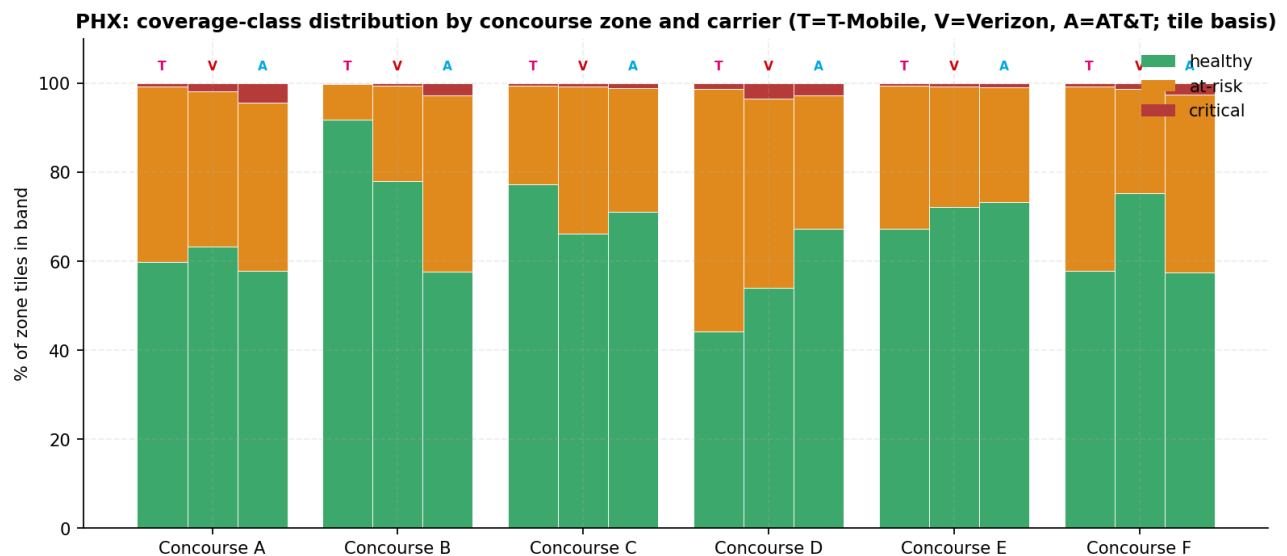


FIG. 13. Coverage-class distribution by concourse zone and carrier (tile basis; T=T-Mobile, V=Verizon, A=AT&T). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Critical-band gates (below -110 dBm) by carrier: T-Mobile 0, Verizon 0, AT&T 0 of 110 gates (counts). On the tile basis the critical share peaks at T-Mobile 1% in Concourse D (n=994); Verizon 3% in Concourse D (n=915); AT&T 4% in Concourse A (n=927). Lowest healthy share in any zone: T-Mobile 44% (Concourse D); Verizon 54% (Concourse D); AT&T 57% (Concourse F).

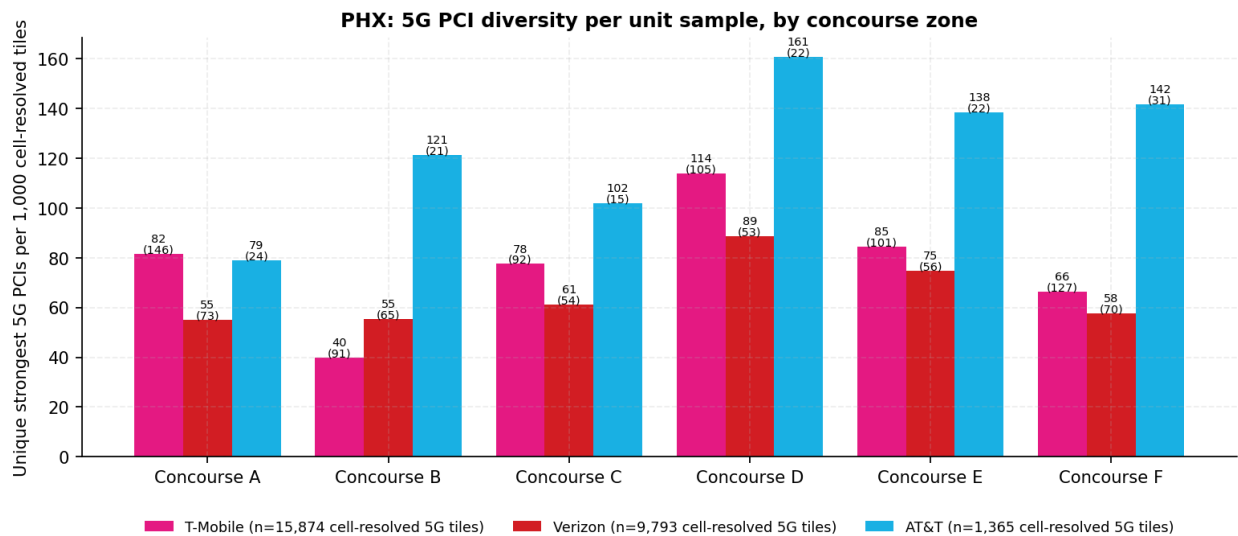


FIG. 14. Unique strongest-serving physical cell identities (PCIs) per 1,000 cell-resolved tiles, per zone per carrier, with the raw unique count in brackets. Normalized because a unique count rises with sample size. Reads in both directions; always pair with SINR (section 16).
Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

The PCI picture in each zone reflects which sectors reach it, macro or in-building. Higher diversity with healthy SINR means several sectors serve the zone cleanly. Higher diversity with poor SINR means they compete. The raw unique counts are not comparable across carriers, because the cell-resolved samples behind them differ by more than an order of magnitude (T-Mobile 15,874, Verizon 9,793, AT&T 1,365 tiles), which is why the bars are per 1,000 tiles. Even normalized, this metric is a sampling statistic as much as a network property: PCI counts accumulate over 12 months across every 5G layer a carrier runs, so reassignment and multi-carrier layers inflate them. Read it as a prompt to look at SINR in the same zone, not as a ranking.

4.3 Cross-carrier concordance by gate

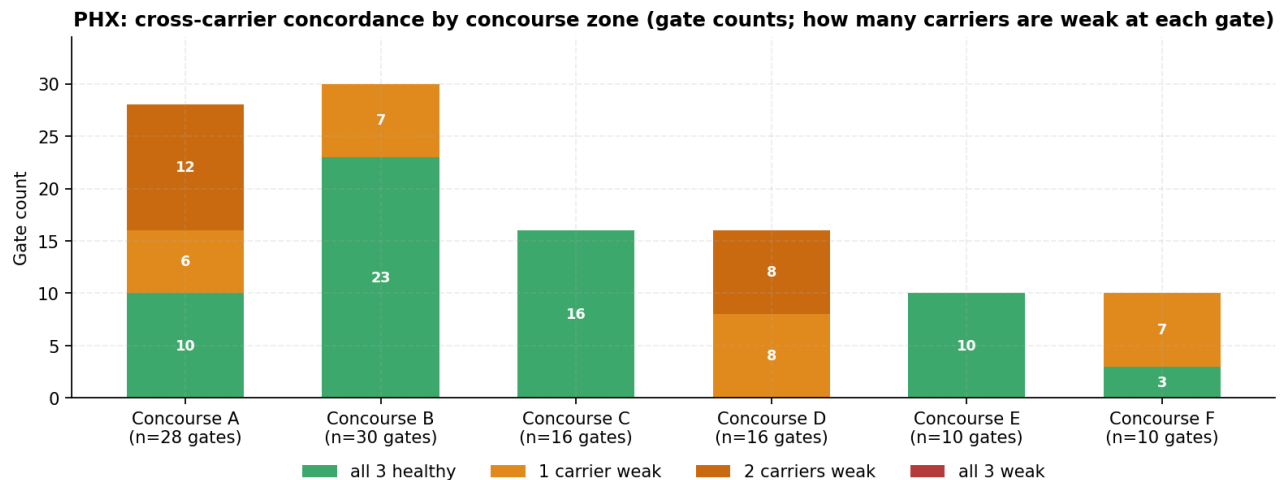


FIG. 15. Per concourse zone: how many of the three carriers are below the healthy line at each gate (gate counts). Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

This split shapes the infrastructure question. A gate weak for all three carriers points to a gate-area problem for that gate's 80 m circle, which can include apron. A gate weak for exactly one carrier points

to that carrier's path. Counts across 110 gates: 62 healthy for all three, 28 weak for one carrier, 20 weak for two, and 0 weak for all three. Where one carrier is weak it is T-Mobile 11, Verizon 3, AT&T 14. Where two are weak the pair is T-Mobile and Verizon at 12; T-Mobile and AT&T at 6; Verizon and AT&T at 2. No gate is weak for all three carriers.

At 62 of 110 gates every carrier is healthy, and where a gate is weak it is most often one carrier's path (28 one-weak gates against 20 with two or more weak). That is a per-carrier picture, not a venue-wide gap, and it is what the per-building split in section 4.7 also shows: the carrier that is weak changes from building to building. The concordance does not by itself say which buildings carry service on the new system; Recommendation 1 asks for the per-building phase map.

4.4 Terminal 4 Concourses A and B

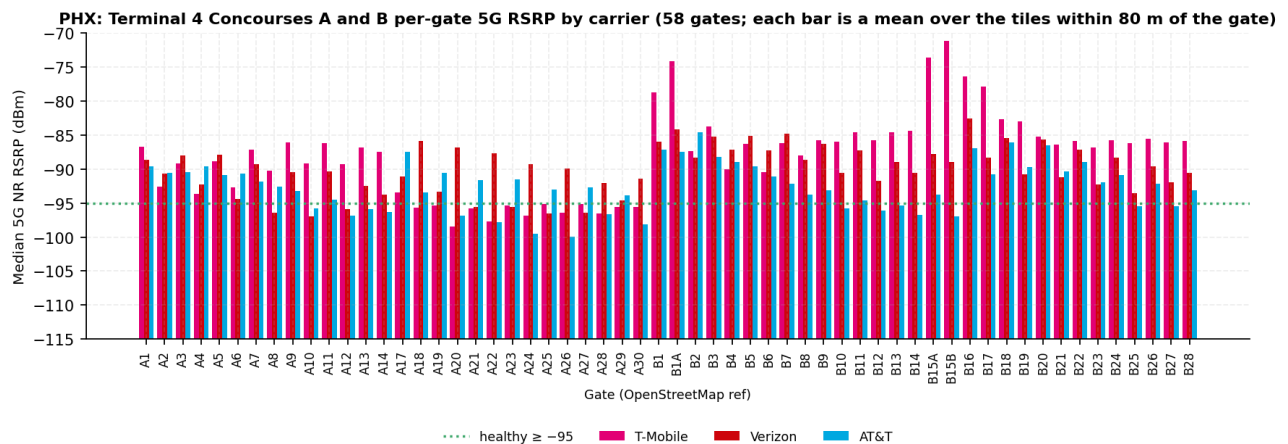


FIG. 16. Per-gate 5G RSRP across the 58 Concourse A and B gates (OpenStreetMap inventory). Each bar is a mean over the tiles within 80 m of the gate. Bars rise from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Terminal 4: eight concourses on Level 3, four on the north side carrying the A and B gates and four on the south side carrying the C and D gates. The official Level 3 map, revision October 2, 2022, assigns gates A1 to A30 and B1 to B22 to American Airlines, gates B23 to B28 to international carriers, and gates C1 to C19 and D1 to D8 to Southwest Airlines; gates D11 to D18 in the 2022 concourse are Southwest. Airlines that began service after that map, including China Airlines and STARLUX Airlines, are not assigned to a concourse in any held source (held). Terminal 4 Concourse A hosts American Airlines (held; Terminal 4 north concourses, gates A1-A14 and A15-A30 (American Airlines) per the official Terminal 4 Level 3 map rev. 2022-10-02). It holds 28 of the 110 measured gates. Best-5G counts: AT&T 10, T-Mobile 9, Verizon 9. Healthy 5G gates: T-Mobile 15 of 28 gates (count), Verizon 21 of 28 gates (count), AT&T 18 of 28 gates (count). Gate-basis 5G medians: T-Mobile -93.5, Verizon -91.7, AT&T -93.1 dBm. Tile-basis healthy shares: T-Mobile 60%, Verizon 63%, AT&T 58% (n ≥ 927 tiles per carrier), a carrier-to-carrier spread of 5 points on a pool that includes apron and roadway.

Terminal 4 Concourse B hosts American Airlines (B23-B28 international) (held; Terminal 4 north concourses, gates B1-B14 and B15-B22 (American Airlines); B23-B28 international (American, British Airways, Condor, Volaris, WestJet on the 2022 map; China Airlines and STARLUX joined in-window, gate area not stated)). It holds 30 of the 110 measured gates. Best-5G counts: T-Mobile 25, Verizon 4, AT&T 1. Healthy 5G gates: T-Mobile 30 of 30 gates (100%), Verizon 30 of 30 gates (100%), AT&T 23 of 30 gates (77%). Gate-basis 5G medians: T-Mobile -85.7, Verizon -88.3, AT&T -91.5 dBm. Tile-basis healthy

shares: T-Mobile 92%, Verizon 78%, AT&T 58% ($n \geq 886$ tiles per carrier), a carrier-to-carrier spread of 34 points on a pool that includes apron and roadway.



PHOTO. Southwest Airlines 737 on the Terminal 4 apron, July 2025. · Photo: BeeboMan, CC BY 4.0, via Wikimedia Commons

4.5 Terminal 4 Concourses C and D

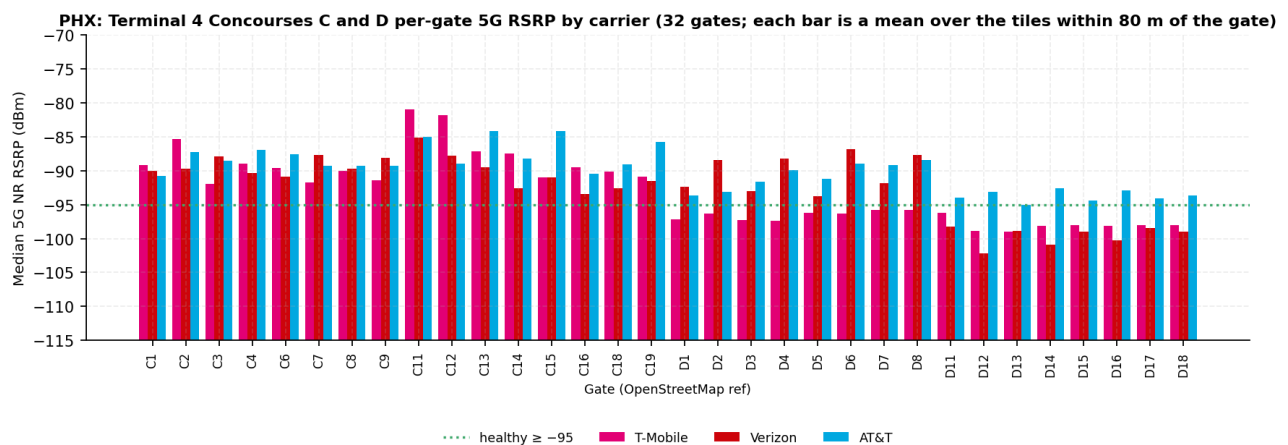


FIG. 17. Per-gate 5G RSRP across the 32 Concourse C and D gates (OpenStreetMap inventory). Each bar is a mean over the tiles within 80 m of the gate. Bars rise from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Terminal 4 Concourse C hosts Southwest Airlines (held; Terminal 4 south concourses, gates C1-C9 and C11-C19 (Southwest Airlines) per the official map). It holds 16 of the 110 measured gates. Best-5G counts: AT&T 7, T-Mobile 6, Verizon 3. Healthy 5G gates: T-Mobile 16 of 16 gates (count), Verizon 16 of 16 gates (count), AT&T 16 of 16 gates (count). Gate-basis 5G medians: T-Mobile -89.5 , Verizon -89.8 , AT&T -88.3 dBm. Tile-basis healthy shares: T-Mobile 77%, Verizon 66%, AT&T 71% ($n \geq 480$ tiles per carrier), a carrier-to-carrier spread of 11 points on a pool that includes apron and roadway.

Terminal 4 Concourse D hosts Southwest Airlines (held; Terminal 4 south concourses: gates D1-D8 (Southwest) per the official map plus D11-D18, the eight-gate eighth concourse opened 2022-06-20 and occupied by Southwest (skyharbor.com history)). It holds 16 of the 110 measured gates. Best-5G counts: AT&T 11, Verizon 5. Healthy 5G gates: T-Mobile 0 of 16 gates (count), Verizon 8 of 16 gates (count), AT&T 16 of 16 gates (count). Gate-basis 5G medians: T-Mobile -97.3 , Verizon -96.0 , AT&T -93.0 dBm.

Tile-basis healthy shares: T-Mobile 44%, Verizon 54%, AT&T 67% ($n \geq 440$ tiles per carrier), a carrier-to-carrier spread of 23 points on a pool that includes apron and roadway. Gates D11 to D18 are the 310 million dollar eighth concourse, which opened to the public on June 20, 2022 and is occupied by Southwest Airlines; it is the newest passenger building on the campus and it also added a post-security connector bridge between the D and A concourses (held); over that building's footprint the carriers separate most (section 4.7): T-Mobile 16% healthy, median -102.0 dBm ($n=99$), Verizon 9% healthy, median -106.0 dBm ($n=98$), AT&T 57% healthy, median -94.0 dBm ($n=68$).



PHOTO. American Airlines 737 manoeuvring on the Terminal 4 apron, May 2025. The photographer records the aircraft as operating to gate B22; the gate itself is not visible in the frame. · Photo: Designism, CCO, via Wikimedia Commons



PHOTO. Terminal 4 concourse dining area, August 2023. · Photo: FASTILY, CC BY-SA 4.0, via Wikimedia Commons

4.6 Terminal 3 Concourses E and F

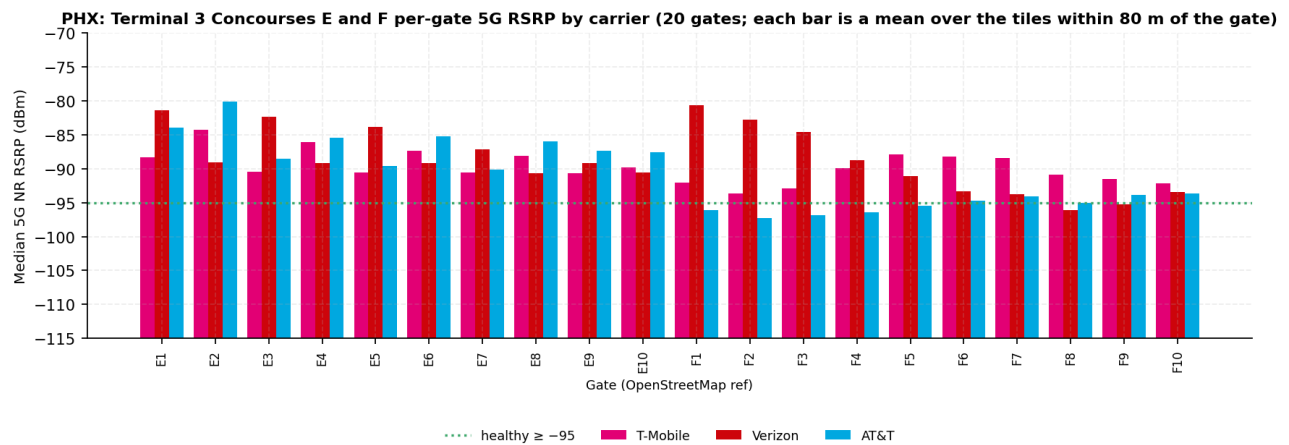


FIG. 18. Per-gate 5G RSRP across the 20 Concourse E and F gates (OpenStreetMap inventory). Each bar is a mean over the tiles within 80 m of the gate. Bars rise from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Terminal 3: two concourses, the North Concourse with gates E1 to E10 and the South Concourse with gates F1 to F15, after a 590 million dollar modernization completed in 2020; all gates are common use (held). Terminal 3 Concourse E (North) hosts Air Canada, Alaska, Hawaiian, United (primarily) (held; Terminal 3 North Concourse, gates E1-E10 (renovated, opened February 2020); the 2020 media kit names Air Canada, Alaska, Contour, Hawaiian and United as primary users; all Terminal 3 gates are

common-use and shareable across concourses). It holds 10 of the 110 measured gates. Best-5G counts: AT&T 6, Verizon 4. Healthy 5G gates: T-Mobile 10 of 10 gates (count), Verizon 10 of 10 gates (count), AT&T 10 of 10 gates (count). Gate-basis 5G medians: T-Mobile -89.0, Verizon -89.2, AT&T -86.7 dBm. Tile-basis healthy shares: T-Mobile 67%, Verizon 72%, AT&T 73% ($n \geq 505$ tiles per carrier), a carrier-to-carrier spread of 6 points on a pool that includes apron and roadway.

Terminal 3 Concourse F (South) hosts Delta and other Terminal 3 carriers (common use) (held; Terminal 3 South Concourse, gates F1-F15 (opened January 2019); Delta Sky Club is in the South Concourse; the remaining Terminal 3 carriers (Delta, Frontier, JetBlue, Allegiant, Breeze, Sun Country, Spirit until 2026-01-08, and others) use these common-use gates; a per-airline gate assignment is NOT HELD). It holds 10 of the 110 measured gates. Best-5G counts: T-Mobile 6, Verizon 4. Healthy 5G gates: T-Mobile 10 of 10 gates (count), Verizon 8 of 10 gates (count), AT&T 5 of 10 gates (count). Gate-basis 5G medians: T-Mobile -91.2, Verizon -92.2, AT&T -95.2 dBm. Tile-basis healthy shares: T-Mobile 58%, Verizon 75%, AT&T 57% ($n \geq 767$ tiles per carrier), a carrier-to-carrier spread of 18 points on a pool that includes apron and roadway. Over the Terminal 3 footprint (section 4.7): T-Mobile 92% healthy, median -86.0 dBm ($n=344$), Verizon 82% healthy, median -90.0 dBm ($n=333$), AT&T 69% healthy, median -90.0 dBm ($n=227$); T-Mobile leads.



PHOTO. View from a Terminal 3 gate window, April 2025, with Alaska Air Group aircraft at adjacent stands. · Photo: Ziongarage, CCO, via Wikimedia Commons

4.7 Building-masked view (OSM polygons)

PHX building-masked view using the OSM building-polygon mask (2025-09-01 to 2026-08-31)

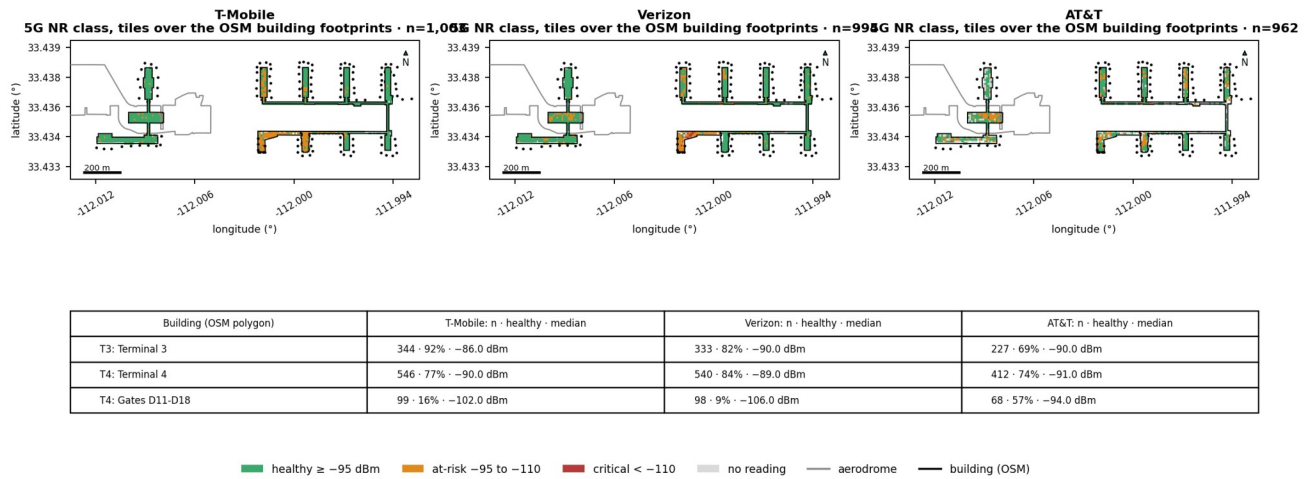


FIG. 19. Tiles whose centroid falls inside a pinned OSM building polygon (Terminal 3, Terminal 4, and the separately mapped Gates D11 to D18 building), colored by 5G NR class, with the per-building per-carrier table. This is our OSM building-polygon mask, not Ookla's Indoor layer. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Building (OSM polygon)	T-Mobile: n · healthy · median 5G RSRP	Verizon: n · healthy · median 5G RSRP	AT&T: n · healthy · median 5G RSRP	Leader (tie-aware)
T3: Terminal 3	344 · 92% · -86.0 dBm	333 · 82% · -90.0 dBm	227 · 69% · -90.0 dBm	T-Mobile leads
T4: Terminal 4	546 · 77% · -90.0 dBm	540 · 84% · -89.0 dBm	412 · 74% · -91.0 dBm	Verizon leads
T4: Gates D11-D18	99 · 16% · -102.0 dBm	98 · 9% · -106.0 dBm	68 · 57% · -94.0 dBm	AT&T leads

The mask is a point-in-polygon test of tile centroids against the pinned OpenStreetMap footprints, so it selects tiles over the buildings rather than tiles measured inside the buildings (section 16). It is the basis on which this report names a terminal leader, because the 80 m gate join at PHX reaches apron and roadway as much as building: across the 110 gate points, a median of 21.6% of the tile centroids inside the join fall within a building footprint, and the highest at any gate is 37%, so a gate-area figure is mostly an outdoor ramp reading (per concourse: Concourse A 20.6%, Concourse B 22.9%, Concourse C 16.5%, Concourse D 20.1%, Concourse E 21.6%, Concourse F 26.6%). Every ranked cell clears the 30-tile floor. Terminal 3: T-Mobile leads (T-Mobile 92%, Verizon 82%, AT&T 69%). Terminal 4: Verizon leads (T-Mobile 77%, Verizon 84%, AT&T 74%). Gates D11 to D18: AT&T leads (T-Mobile 16%, Verizon 9%, AT&T 57%). Per carrier, the lowest building is T-Mobile T4: Gates D11-D18 (16%); Verizon T4: Gates D11-D18 (9%); AT&T T4: Gates D11-D18 (57%), and the highest is T-Mobile T3: Terminal 3 (92%); Verizon T4: Terminal 4 (84%); AT&T T4: Terminal 4 (74%). The leader changes from building to building, which is the pattern a phased in-building program produces and equally the pattern macro-site geometry can produce; the attestation in Recommendation 1 decides which. Ookla's own Indoor layer is not used here (section 15).

5. Tenant level

The 117 mapped points come from an OpenStreetMap capture pinned 2026-09-16 (points only). Category point counts sit below the 30-point floor. Category comparisons therefore run on the tile basis behind each category's points: tiles within 80 m of any point, deduplicated. Point counts appear on every axis.

5.1 Category signal strength and quality

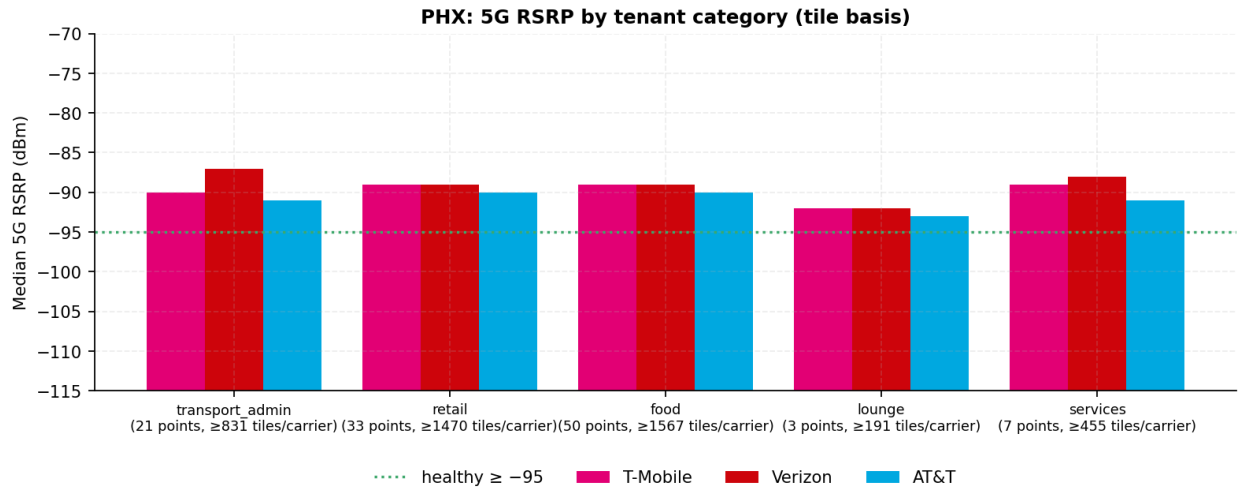


FIG. 20. Median 5G RSRP by tenant category (tile basis; points and minimum tiles per carrier on the axis). Bars rise from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

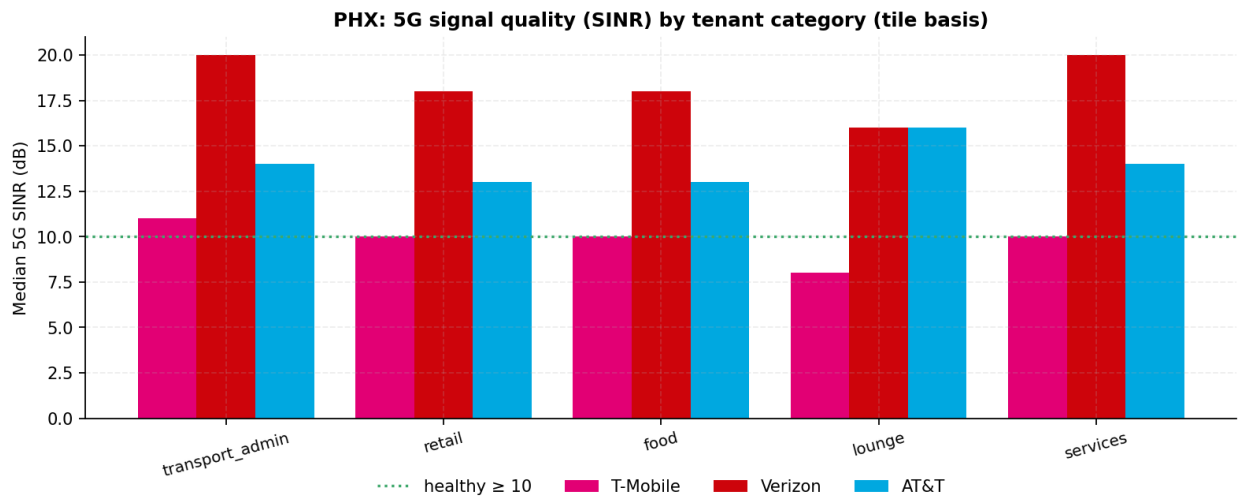


FIG. 21. Median 5G SINR by tenant category (tile basis). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Ranked categories clear the floor for every carrier: transport_admin, retail, food, lounge, services. Categories reported as counts only (a carrier's tile basis below 30): other (3 points). Carrier-to-carrier spread per category on the tile median: transport_admin 4 dB, retail 1 dB, food 1 dB, lounge 1 dB, services 3 dB. Spreads at or under 1 dB are not rankings, and tile RSRP is integer-valued, so a category ordering is not published here. Read the chart as a pattern; the point counts are small and every category pool includes apron and roadway tiles.

5.2 Terminal vs periphery RSRP proxy

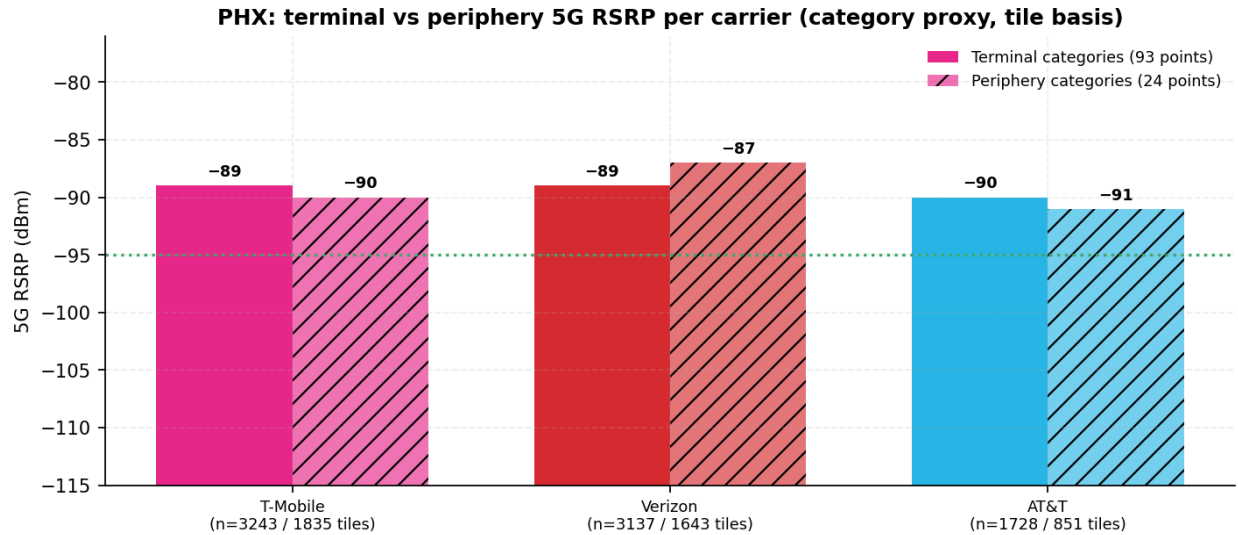


FIG. 22. Per-carrier median 5G RSRP, terminal tenant categories vs periphery categories, on the tile basis. Proxy: category-based masking, not Ookla's building-polygon indoor mask (queued, section 15). Bars rise from -115 dBm, so a longer bar is a stronger signal. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

- T-Mobile: periphery -90.0 dBm (n=1,835 tiles behind 24 points), terminal -89.0 dBm (n=3,243 tiles behind 93 points), periphery minus terminal -1.0 dB
- Verizon: periphery -87.0 dBm (n=1,643 tiles behind 24 points), terminal -89.0 dBm (n=3,137 tiles behind 93 points), periphery minus terminal $+2.0$ dB
- AT&T: periphery -91.0 dBm (n=851 tiles behind 24 points), terminal -90.0 dBm (n=1,728 tiles behind 93 points), periphery minus terminal -1.0 dB

Terminal categories cover the concessions and services inside the terminal footprints; periphery categories cover the parking structures, the Sky Train and transit points, and roadside businesses. A large positive periphery-minus-terminal delta is consistent with macro spillover. A flat or negative delta is ambiguous between close-in macro coverage and an in-building source. Distance to macro sites confounds both readings, and the Site Finder layer (section 15) is queued to resolve it. Deltas: T-Mobile -1.0 dB, Verizon $+2.0$ dB, AT&T -1.0 dB. Tile RSRP is integer-valued, so medians and deltas quantize to whole dB.

5.3 Airline gate clusters

Concourse: airlines (cited, not held)	Gates (n)	T-Mobile median 5G RSRP, dBm (tile n)	Verizon median 5G RSRP, dBm (tile n)	AT&T median 5G RSRP, dBm (tile n)
Concourse A (Terminal 4): American Airlines	28	-93.0 (n=1957)	-92.0 (n=1865)	-93.0 (n=927)
Concourse B (Terminal 4): American Airlines (B23-B28 international)	30	-83.0 (n=2492)	-89.0 (n=1818)	-94.0 (n=886)
Concourse C (Terminal 4): Southwest Airlines	16	-89.0 (n=1258)	-92.0 (n=1172)	-90.0 (n=480)
Concourse D (Terminal 4): Southwest Airlines	16	-97.0 (n=994)	-94.0 (n=915)	-91.0 (n=440)
Concourse E (Terminal 3): Air Canada, Alaska, Hawaiian, United (primarily)	10	-92.0 (n=1267)	-92.0 (n=1052)	-86.0 (n=505)
Concourse F (Terminal 3): Delta and other Terminal 3 carriers (common use)	10	-94.0 (n=2064)	-89.0 (n=2051)	-94.0 (n=767)

An airline reads its exposure through its concourse and the passenger's carrier. The concourse column is the airline set the official gate map and the airport's airline list place there; a per-airline gate assignment is not held for either terminal, so the rows are concourse groupings, not airline-specific

measurements. Read the medians with the margins shown: margins at or under 1 dB are not rankings, tile RSRP is integer-valued, and the pool behind each row includes apron and roadway.

5.4 Retail and food brand coverage

Brand	Points (n)	T-Mobile median 5G RSRP (dBm, class)	Verizon median 5G RSRP (dBm, class)	AT&T median 5G RSRP (dBm, class)
Hudson	1	-86.2 (healthy)	-89.0 (healthy)	-88.0 (healthy)
Starbucks	6	-86.8 (healthy)	-87.7 (healthy)	-88.5 (healthy)
Peet's	1	-93.8 (healthy)	-88.2 (healthy)	-89.3 (healthy)
Panda Express	1	-87.8 (healthy)	-92.3 (healthy)	-92.0 (healthy)
Wendy's	1	-87.4 (healthy)	-86.1 (healthy)	-88.7 (healthy)
Barrio Cafe	1	-96.7 (at-risk)	-91.6 (healthy)	-93.5 (healthy)
Four Peaks	1	-96.5 (at-risk)	-90.8 (healthy)	-95.1 (at-risk)
Zinburger	1	-89.9 (healthy)	-88.9 (healthy)	-90.2 (healthy)
Blanco	1	-89.7 (healthy)	-88.8 (healthy)	-90.7 (healthy)
Shake Shack	1	-87.4 (healthy)	-92.0 (healthy)	-91.9 (healthy)
Cartel	1	-83.1 (healthy)	-87.9 (healthy)	-86.6 (healthy)
Tammie Coe	1	-96.2 (at-risk)	-93.5 (healthy)	-95.6 (at-risk)
Pei Wei	1	-96.6 (at-risk)	-90.7 (healthy)	-95.2 (at-risk)
La Grande Orange	1	-97.2 (at-risk)	-91.2 (healthy)	-93.4 (healthy)
Humble Pie	2	-93.7 (healthy)	-89.4 (healthy)	-91.8 (healthy)
Matt's Big Breakfast	1	-88.0 (healthy)	-85.5 (healthy)	-90.9 (healthy)
InMotion	3	-87.1 (healthy)	-87.9 (healthy)	-88.1 (healthy)
Arizona Highways	1	-94.0 (healthy)	-87.7 (healthy)	-89.9 (healthy)

Multi-location brands are a cross-zone consistency check, not a comparison: point counts are small (6 at most, and most rows rest on a single point), so no carrier ordering is read from this table and every cell carries its coverage class so a sub-healthy value cannot pass unmarked. 8 of the 54 cells sit below the healthy line: Barrio Cafe (T-Mobile), Four Peaks (T-Mobile), Four Peaks (AT&T), Tammie Coe (T-Mobile), Tammie Coe (AT&T), Pei Wei (T-Mobile), Pei Wei (AT&T), La Grande Orange (T-Mobile). Each point value is a mean over the tiles within 80 m of the point (per-point tile n in Appendix A).

5.5 Airline lounges present in the OpenStreetMap capture

Lounge point	Zone	T-Mobile 5G RSRP (class, n tiles)	Verizon 5G RSRP (class, n tiles)	AT&T 5G RSRP (class, n tiles)
Centurion Lounge	Concourse B	-86.3 dBm (healthy, n=177)	-89.6 dBm (healthy, n=159)	-89.7 dBm (healthy, n=168)
Escape Lounge	Concourse B	-86.3 dBm (healthy, n=173)	-89.7 dBm (healthy, n=155)	-90.2 dBm (healthy, n=164)

2 lounge points are in the pinned capture: Centurion Lounge, Escape Lounge. These are single-point aggregates over the tiles within 80 m of each point, reported for scope and not ranked.

6. Load and density

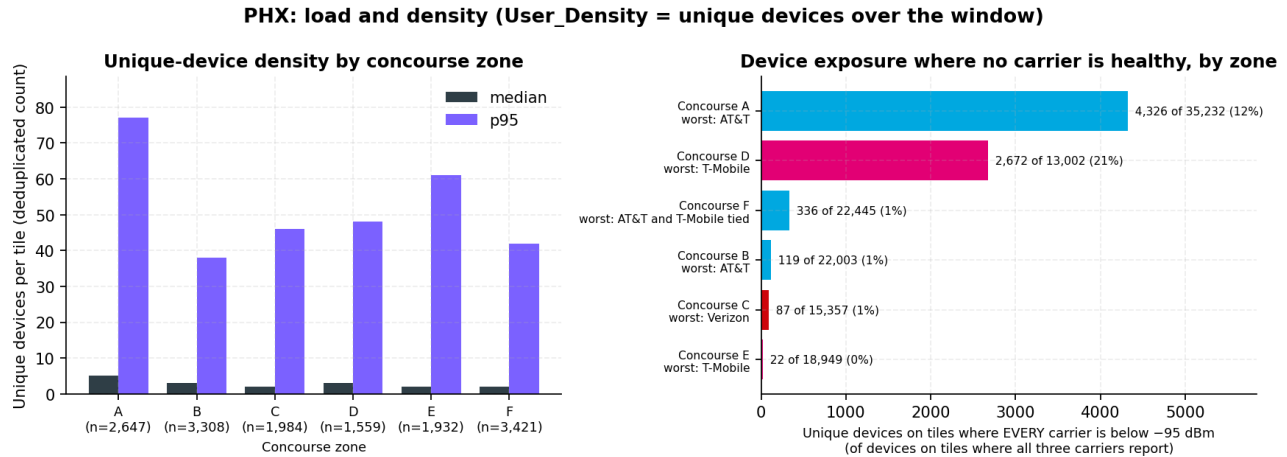


FIG. 23. Left: unique-device density by concourse zone (median and 95th percentile per tile). Right: unique devices observed on tiles where every carrier is below the healthy line, counted only over tiles where all three carriers report 5G, with that denominator shown. User_Density = unique devices over the window, deduplicated. · Source: Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

Density is this dataset's demand signal. Ookla's User_Density field counts the unique Android devices observed per tile over the window, deduplicated. It does not count simultaneous users and it does not measure time spent. Zone medians: Concourse A 5 (p95 77, n=2,647), Concourse B 3 (p95 38, n=3,308), Concourse C 2 (p95 46, n=1,984), Concourse D 3 (p95 48, n=1,559), Concourse E 2 (p95 61, n=1,932), Concourse F 2 (p95 42, n=3,421). The on-airport median is 2 devices per tile across 26,948 usage tiles.

The right panel puts weak signal and demand in one quantity with one unit. For each zone it sums User_Density over the tiles where EVERY carrier reporting 5G on that tile is below -95.0 dBm, so the bar is a count of unique devices seen where no carrier was healthy, not an index. Only tiles on which all three carriers report are counted, and the denominator is printed beside each bar. The usage and radio panels are separate exports on the same tile grid and are joined tile to tile, never on a coarser cell, because a coarse join takes the worst reading anywhere within about 110 m and saturates. Result: Concourse A 4,326 devices of 35,232 (12%), Concourse D 2,672 devices of 13,002 (21%), Concourse F 336 devices of 22,445 (1%), Concourse B 119 devices of 22,003 (1%), Concourse C 87 devices of 15,357 (1%), Concourse E 22 devices of 18,949 (0%). Concourse A and Concourse D hold 93% of the venue's exposure on this measure, which is what makes them the first two places to re-measure (section 13). The worst carrier per zone is AT&T in Concourse A; T-Mobile in Concourse D; AT&T and T-Mobile tied in Concourse F; AT&T in Concourse B; Verizon in Concourse C; T-Mobile in Concourse E (a below-healthy margin under 1 point is a tie).

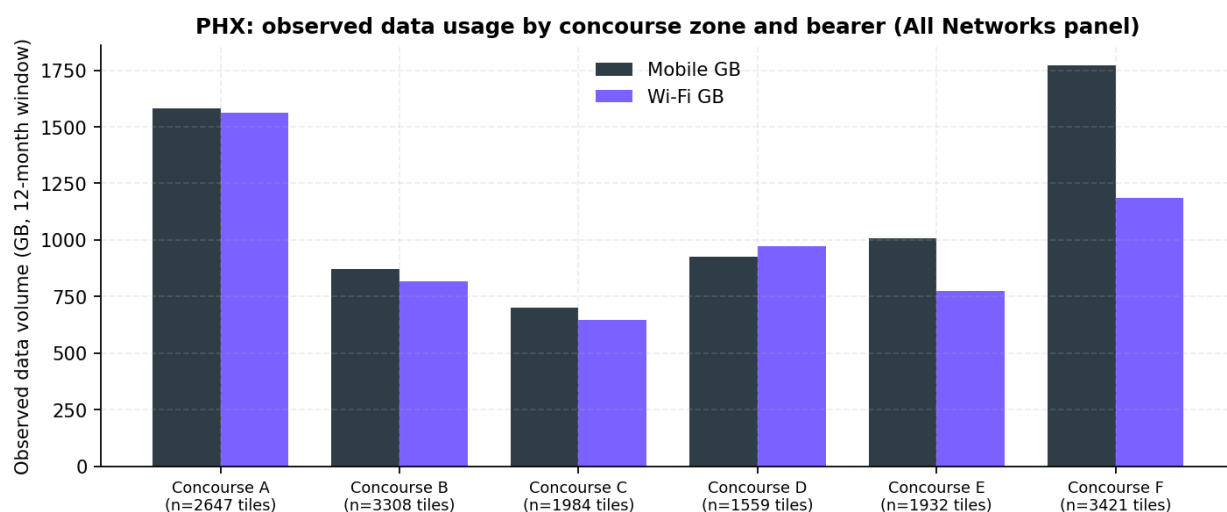


FIG. 24. Observed data volume by concourse zone and bearer (GB over the 12-month window). · Source: Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

Usage volume shows where bandwidth is consumed, by bearer and by zone. It is observed sample volume from the crowdsourcing panel. It is not total traffic.

7. Wi-Fi as an augmentation layer

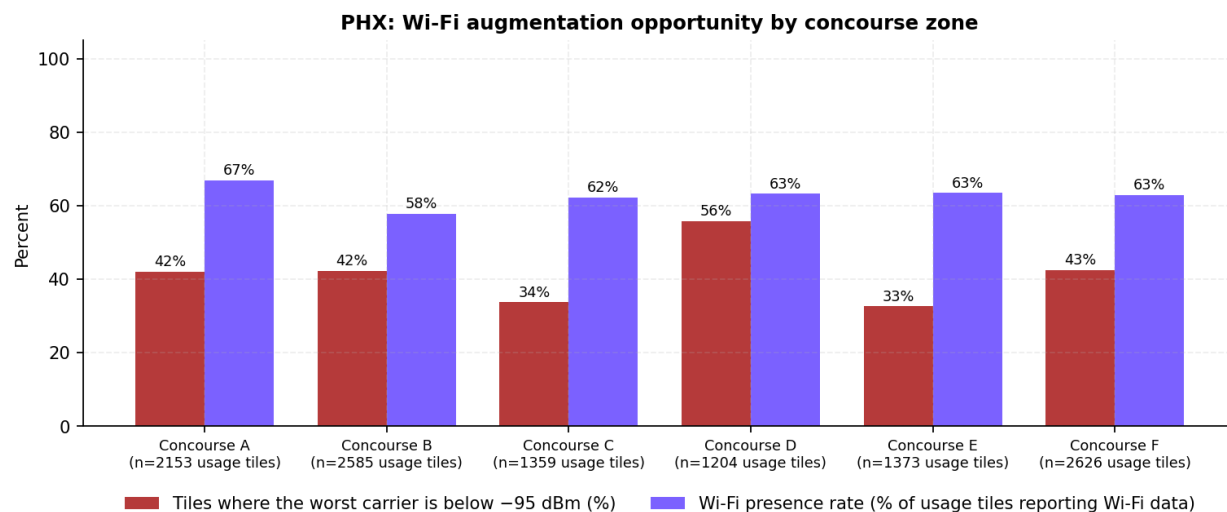


FIG. 25. By concourse zone: the share of tiles where the WEAKEST carrier is below the healthy line, beside the Wi-Fi presence rate. Both bars point the same way, so a tall red bar with a tall purple bar is a zone where Wi-Fi is already carrying the gap. Zone n counts usage tiles that report the Wi-Fi field, so it is smaller than the density n in FIG. 23. · Source: Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

Wi-Fi presence (a different figure from the offload share): Wi-Fi usage is observed on 60.0% of the 19,449 on-airport usage tiles that report the Wi-Fi field. A non-reporting tile means no measurement and is excluded from the denominator; it is not evidence of no Wi-Fi. The augmentation opportunity is largest where the worst-served carrier is weakest and Wi-Fi presence is high.

7.1 Offload share (venue and zone level only)

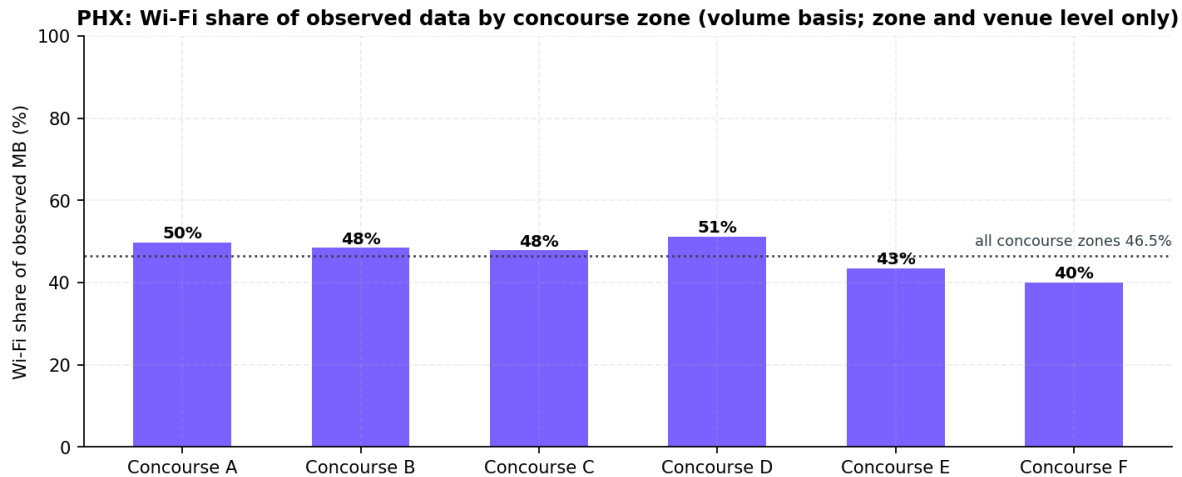


FIG. 26. Wi-Fi share of observed data volume by concourse zone, with the venue reference line. · Source: Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

On tiles assigned to a concourse zone, 46.5% of observed data volume moves over Wi-Fi (Σ Wi-Fi MB $\div$ Σ all MB on the All Networks panel, $n=14,851$ tiles); over the whole clip the figure is 47.1% ($n=26,948$). Locked rule (section 16): offload is computed at venue and zone level only. The export does not attribute Wi-Fi usage to any cellular carrier's subscribers, so per-carrier offload is not derivable and not implied. The figure blends the public network with tenant, airline lounge, hotel, and personal networks.

Scope decomposition: the 12,097 usage tiles outside every zone run 50.2% Wi-Fi. The 200 m buffer around the aerodrome captures the Sky Train stations, the Rental Car Center approach, the economy parking lots, and roadway; those are not concourse tiles, which is why the concourse-zone figure is the one on the cover.

7.2 Tenant-level Wi-Fi footprint

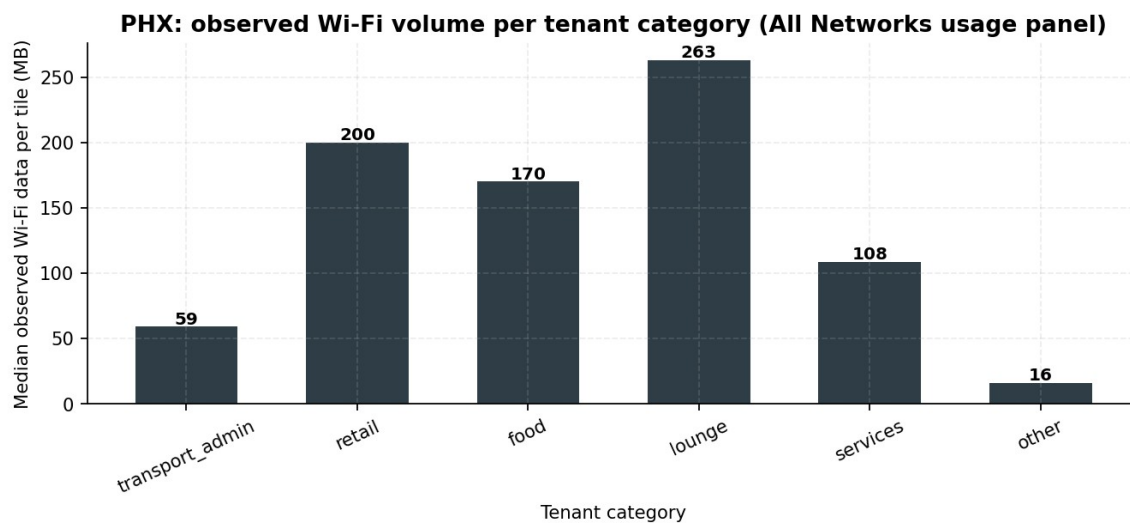


FIG. 27. Median observed Wi-Fi data volume per tile behind each tenant category. The companion presence-rate chart is not drawn because presence is 100% in every category; the rates and point counts are in the text. · Source: Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

Wi-Fi is observed at every mapped venue point in every category, so presence does not discriminate between categories here: transport_admin 100% of 21 points, retail 100% of 33 points, food 100% of 50 points, lounge 100% of 3 points, services 100% of 7 points, other 100% of 3 points. What differs is volume, which the figure shows.

Wi-Fi presence and observed volume peak where passengers spend time. The public network is Free PHX Boingo WiFi (Boingo Wireless under City of Phoenix contract 152010, a revenue contract covering the public areas of both terminals and the Rental Car Center; the City extended it through July 31, 2026 and then month to month while it transitions the service in house; held); the Wi-Fi figures here come solely from the Ookla usage layer. Controller telemetry (section 15) would convert presence into capacity.

8. Private wireless

No public record of a Citizens Broadband Radio Service, private LTE or private 5G network at the airport was located; Phoenix public safety radio runs on the Regional Wireless Cooperative P25 system, and a 2011 trade report describes a distributed antenna system built for in-building radio coverage at the airport (cited, not held). The Ookla drop for this window also contained a separate three-tile export labelled with a CBRS operator; three tiles is below the 30-tile floor and it is held in the audit dossier as a count, not surfaced here. The public Ookla layer does not characterize private networks. Whether a Citizens Broadband Radio Service (CBRS) private-network layer is scoped alongside the City DAS program is a design question for the Aviation Department. AT&T's FirstNet Band 14 (LTE700PS) appears on 335 AT&T LTE tiles (section 9.1). Typical large-hub workloads:

Two items about the in-building layer are not held at this issue, and both are requests to the Aviation Department rather than gaps in the measurement: the entity awarded solicitation AVN RCS 21-008 (no City Council award record, press release or vendor announcement naming the awarded entity was found), and the program's per-building phase map, which would say which concourses carried service on the new system during this window. Recommendation 1 asks for both. Everything measured in this report stands without them.

Workload	Why a private network fits	Coordination required
Baggage handling system instrumentation	Deterministic latency, contained RF, isolation from passenger traffic	Aviation Department, baggage system vendors
Ramp and ground-service vehicle telematics	Outdoor airside coverage with controlled SIM provisioning	Airside operations
Push-to-talk and operational voice	Guaranteed-quality voice independent of public carriers	Phoenix Police Airport Bureau, ground handlers
Fixed cameras and IoT in non-public areas	Bandwidth without consuming public-carrier capacity	Facilities maintenance
Construction-phase connectivity (Terminal 3 and Terminal 4 program work)	Coverage that survives phased construction sequencing	Program management, contractors

9. Spectrum and service availability

9.1 Band distribution

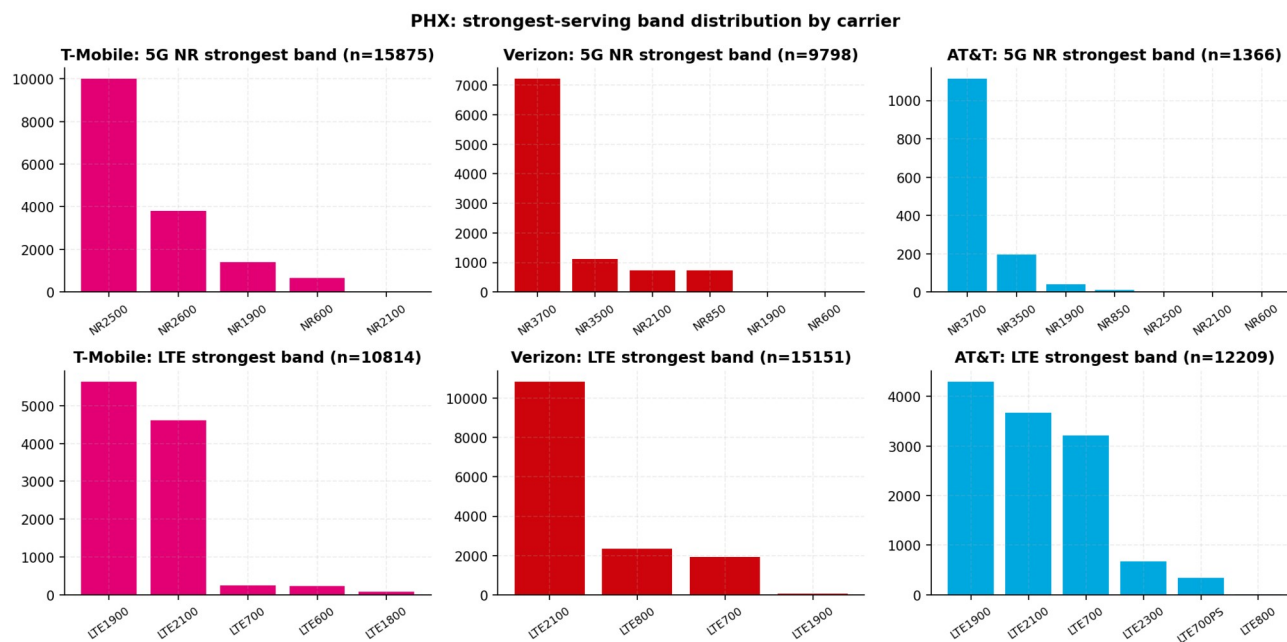


FIG. 28. Strongest-serving band distribution per carrier, 5G NR and LTE (n on each panel). · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

Legend: Ookla band labels are technology plus approximate frequency in MHz, printed verbatim from the export. For example, NR2500 and NR2600 are both 2.5 GHz spectrum, and LTE800 and NR850 are both 850 MHz cellular spectrum. LTE700PS is FirstNet Band 14, the public-safety broadband band. Cell, PCI, and band fields populate only where Ookla resolved a serving cell, so band n is smaller than RSRP n (section 16).

The bands a tile attaches to most often show which spectrum each carrier puts to work at the venue. Sub-1 GHz attachment implies coverage-grade bands. Mid-band attachment implies strong penetration or an in-building source. AT&T's 5G band mix rests on 1,366 cell-resolved tiles against its 6,179 5G-reporting tiles. LTE1800 rows are an Ookla band label as exported, not a United States band allocation.

T-Mobile (n = 15,875 NR tiles, 10,814 LTE tiles):

NR band	Tiles (n)	LTE band	Tiles (n)
NR2500	10009	LTE1900	5642
NR2600	3808	LTE2100	4608
NR1900	1391	LTE700	253
NR600	666	LTE600	231
NR2100	1	LTE1800	80

Verizon (n = 9,798 NR tiles, 15,151 LTE tiles):

NR band	Tiles (n)	LTE band	Tiles (n)
NR3700	7223	LTE2100	10858
NR3500	1115	LTE800	2334
NR2100	725	LTE700	1916
NR850	723	LTE1900	43

AT&T (n = 1,366 NR tiles, 12,209 LTE tiles):

NR band	Tiles (n)	LTE band	Tiles (n)
---------	-----------	----------	-----------

NR3700	1114	LTE1900	4303
NR3500	195	LTE2100	3676
NR1900	41	LTE700	3209
NR850	12	LTE2300	676
NR2500	2	LTE700PS	335
NR2100	1	LTE800	10

9.2 Service availability

Service availability is near-universal for all three carriers and is stated here rather than charted, because every value sits within three points of 100 and a chart of that adds nothing. On tiles that report the field, mean own-network availability is T-Mobile 99%, Verizon 97%, AT&T 98%, and mean general-LTE availability is T-Mobile 99%, Verizon 100%, AT&T 100%. That is the graceful-degradation floor: a device keeps a usable LTE layer almost everywhere on the campus. Basis disclosure: these fields are not populated on every tile. The own-network mean rests on T-Mobile 15,697, Verizon 16,079, AT&T 10,525 tiles and the general-LTE mean on T-Mobile 15,719, Verizon 16,088, AT&T 10,530 tiles, which is T-Mobile 83%, Verizon 87%, AT&T 82% of each carrier's on-airport tiles; the field-population table in section 16 lists every field on the same basis.

10. Carrier-asymmetry atlas

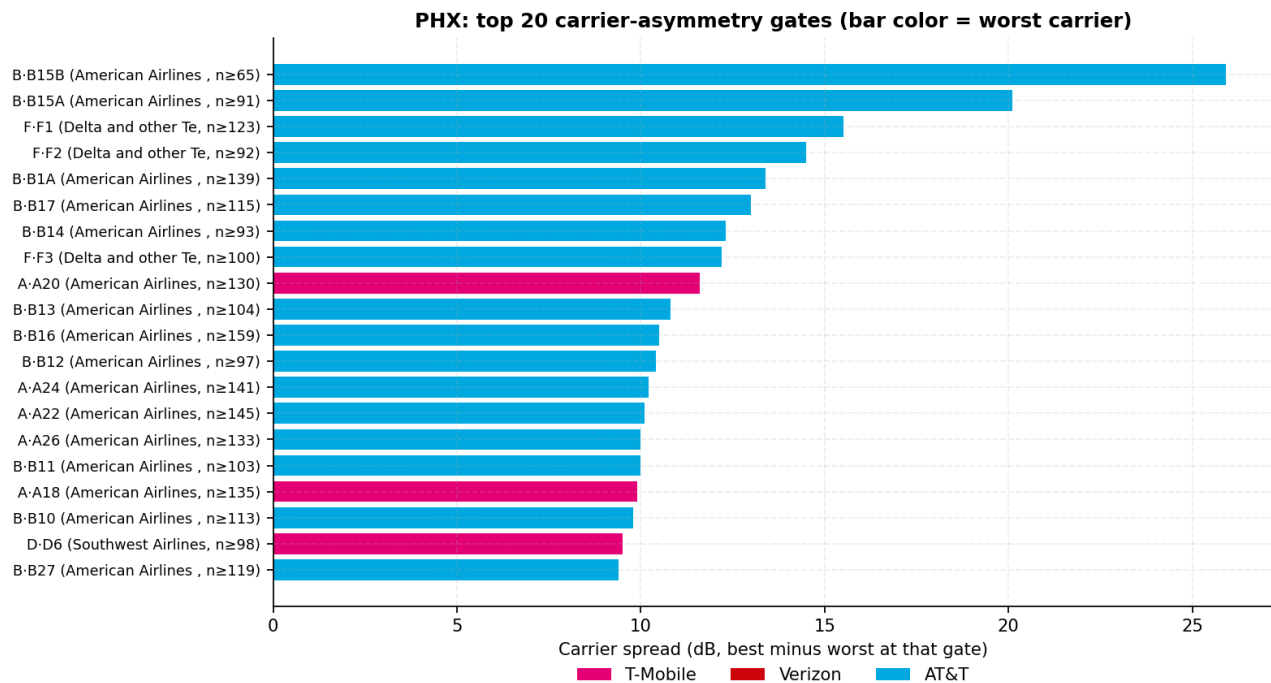


FIG. 29. Top 20 gates by best-minus-worst carrier 5G RSRP spread, among the 110 gates where every carrier's per-gate n is at least 30 tiles. Bar color is the worst carrier at that gate. Gate refs follow the OpenStreetMap inventory. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31

These 20 gates are where a passenger's experience varies most by carrier (spreads of 9 to 26 dB). The best carrier across the top 20 is T-Mobile, Verizon. Worst-carrier tally across all 110 ranked gates: AT&T 49, Verizon 33, T-Mobile 28. The top five sit in Concourse B (3), Concourse F (2): gate B15B at 25.9 dB, gate B15A at 20.1 dB, gate F1 at 15.5 dB, gate F2 at 14.5 dB, gate B1A at 13.4 dB. They serve two purposes: worst-case examples for the stakeholder narrative, and the validation-point list for post-deployment monitoring (section 14). A multi-carrier in-building system should compress this spread.

PHX terminal area, worst-carrier 5G class and unique-device density (2025-09-01 to 2026-08-31)

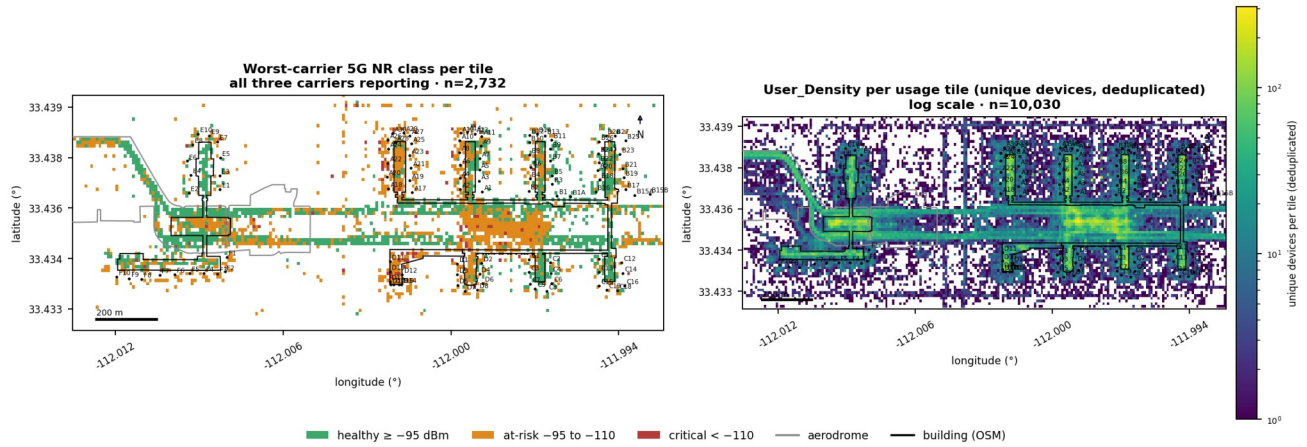


FIG. 30. Left: each terminal-area tile colored by the worst carrier's 5G NR class where all three carriers report. Right: User_Density per usage tile (unique devices, deduplicated) on a log scale over the same extent. · Source: Ookla Cell Analytics per-carrier RF tile export, 2025-09-01 to 2026-08-31; Ookla Cell Analytics All Networks usage export, 2025-09-01 to 2026-08-31

FIG. 30 pairs the two questions an operator asks first: where is the weakest carrier weak, and where are the devices. Amber concentrates over the east end of Terminal 4 and the Terminal 3 concourses, and the density panel shows the concourse cores and the Sky Train stations carrying the highest unique-device counts.

11. Federal and operational-critical tenants

Point	Zone	Per-carrier 5G RSRP (class, n tiles)
Phoenix Police Airport Bureau	outside zones	T-Mobile -93.7 dBm (healthy, n=69); Verizon -75.9 dBm (healthy, n=68); AT&T -97.0 dBm (at-risk, n=67)

1 operational-critical point is identifiable by name in the pinned capture (Phoenix Police Airport Bureau); no other federal or operational-critical point is identifiable by name in the capture. AT&T's FirstNet Band 14 (LTE700PS) appears on 335 AT&T LTE tiles (section 9.1); public-safety coverage posture is a section 15 layer. These readings are single-point aggregates, reported for scope and not ranked.



PHOTO. U.S. Customs and Border Protection officers in the Terminal 4 international arrivals baggage claim, December 2024. · Photo: CBP Photography, Public domain, via Wikimedia Commons

12. Share of gate points below the healthy line, and why passenger exposure is not derivable

Carrier	Gates below healthy 5G	Share of gates	Gates within 1 dB of the line (sensitivity)
T-Mobile	29 of 110	26.4%	10
Verizon	17 of 110	15.5%	6
AT&T	22 of 110	20.0%	16

Translation method: PHX recorded 25,595,723 revenue enplanements in calendar 2024 (FAA, cited, not held) and 51,618,649 total passengers in 2025 (airport statistics page, both directions, held); the two bases are not interchangeable and only the FAA enplanement figure belongs in any translation. Per-gate volumes are not held, so the only translation this report offers is illustrative and stays in prose: distributing annual enplanements uniformly across the 110 measured gates would place the share of gates below healthy 5G onto the same share of enplanements. It is not a measurement, it assigns every gate the same volume regardless of airline, and it is not tabulated for that reason. A gate-level passenger feed (section 15) would replace it. The point stands without it: T-Mobile 26.4%, Verizon 15.5%, AT&T 20.0% of gates sit below the healthy 5G threshold in this window, with T-Mobile 10, Verizon 6, AT&T 16 of those gates within 1 dB of the line.

13. Prioritized recommendations

Ordered by dependency, each with an owner.

#	Recommendation	Owner
1	Obtain the two items the public record does not hold: the entity awarded solicitation AVN RCS	City of Phoenix Aviation

	21-008, and the DAS program's per-building phase map, with the bands (LTE, 5G NR) each of AT&T, Verizon and T-Mobile carries per building and the go-live schedule through spring 2027. The measured pattern (a different least-weak carrier over each of the Terminal 3, Terminal 4 and Gates D11 to D18 footprints, section 4.7) is consistent with more than one explanation, and the answer decides what the after reading is measured against.	Department with the DAS program team
2	Adopt this window as the baseline reading and re-measure per building as each goes live. Section 14 lists the per-carrier, per-zone criteria. Take the weakest 5 carrier-zone cells first, all at or below 58% healthy on the tile basis: T-Mobile in Concourse D (44% of 994 tiles); Verizon in Concourse D (54% of 915 tiles); AT&T in Concourse F (57% of 767 tiles); AT&T in Concourse B (58% of 886 tiles); T-Mobile in Concourse F (58% of 2,064 tiles). They span Terminal 3 (2) and Terminal 4 (3), so those concourses carry the largest measured gap and should be sequenced first where the program schedule allows.	Imagine Wireless with the Aviation Department
3	Make the Gates D11 to D18 footprint the first place the programme is re-measured, for all three carriers: it is the weakest building measured (T-Mobile 16%, Verizon 9%, AT&T 57% of tiles healthy, medians T-Mobile -102.0, Verizon -106.0, AT&T -94.0 dBm). The criteria in section 14 are indicative monitoring targets for a like-for-like re-measurement. They are NOT acceptance criteria and must not be written into a carrier agreement or a DAS acceptance document: acceptance is per-carrier commissioning by walk test and scanner survey.	Aviation Department with the DAS program team and AT&T, Verizon and T-Mobile
4	Treat Wi-Fi as a coexisting capacity layer in the design (46% of observed data volume in the concourse zones rides Wi-Fi, section 7.1; that figure blends the public network with tenant, lounge, hotel and personal Wi-Fi and is not attributable to any one network). Obtain controller telemetry for the public network to size it.	City of Phoenix Aviation Department, Wi-Fi operator
5	Verify public-safety coverage at the Phoenix Police Airport Bureau point by walk test. Across the three carriers the 5G readings at that single point span 21 dB (67 tiles per carrier), and the weakest of the three is AT&T, which is the FirstNet carrier. One point on crowdsourced tiles is not a coverage assessment, which is why this is a walk test rather than a finding, and emergency responder radio coverage is governed by the authority having jurisdiction and NFPA 1221, not by this instrument.	Aviation Department with the Phoenix Police Airport Bureau and the authority having jurisdiction
6	Decide the CBRS and private-wireless question alongside the DAS program (section 8), not after it, so the DAS coverage exhibit's decommissioning clause for standalone systems is applied with the private-network plan in view.	City of Phoenix Aviation Department

14. Post-deployment monitoring criteria and re-measurement plan

These are INDICATIVE monitoring criteria for a like-for-like re-measurement. They are not the acceptance test for any system, they are not contractual, and they must not be written into a carrier agreement or a DAS acceptance document: acceptance is per-carrier commissioning by walk test and scanner survey. Every threshold below is the locked ladder from section 16 (-95.0 dBm healthy) plus this window's measured baseline recorded for comparison. This report sets no target share: a share to aim at depends on the design, and on window-to-window variation this single window cannot estimate. The baseline itself may blend served and unserved space, because which buildings carried service on the new system during the window is not held (section 8). Gate refs and counts come from the OpenStreetMap inventory (Concourse A 28, Concourse B 30, Concourse C 16, Concourse D 16, Concourse E 10, Concourse F 10; the official Terminal 4 Level 3 map, revision October 2, 2022, publishes gates A1 to A30, B1 to B28 with B23 to B28 international, C1 to C9 and C11 to C19, D1 to D8, and the airport's history page adds gates D11 to D18 in the 2022 concourse; Terminal 3 publishes gates E1 to E10 in the North Concourse and F1 to F15 in the South Concourse, with the terminal total stated as 25 gates in the 2020 modernization record and as 20 in a 2025 City release that adds six more, held). Gate-named criteria must be reconciled against the Aviation Department's gate plan before adoption.

Zone, building, or point	Carrier	Criterion (threshold)	Re-test
All measured gates	Every hosted carrier	5G SS-RSRP median $\geq$ -95 dBm per gate	Like-for-like window after go-live
All measured gate points	T-Mobile	Healthy 5G share above this window's baseline of 74% (81 of 110 gate points); no target share is set here	Like-for-like window after go-live
Concourse A	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 60% (n=1,957)	Like-for-like window after the zone's building goes live

Concourse B	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 92% (n=2,492)	Like-for-like window after the zone's building goes live
Concourse C	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 77% (n=1,258)	Like-for-like window after the zone's building goes live
Concourse D	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 44% (n=994)	Like-for-like window after the zone's building goes live
Concourse E	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 67% (n=1,267)	Like-for-like window after the zone's building goes live
Concourse F	T-Mobile	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 58% (n=2,064)	Like-for-like window after the zone's building goes live
T3: Terminal 3	T-Mobile	Median over the footprint at or above -95.0 dBm (locked ladder; this window -86.0 dBm); healthy share compared against this window's baseline of 92% (n=344)	Like-for-like window after that building goes live
T4: Terminal 4	T-Mobile	Median over the footprint at or above -95.0 dBm (locked ladder; this window -90.0 dBm); healthy share compared against this window's baseline of 77% (n=546)	Like-for-like window after that building goes live
T4: Gates D11-D18	T-Mobile	Median over the footprint at or above -95.0 dBm (locked ladder; this window -102.0 dBm); healthy share compared against this window's baseline of 16% (n=99)	Like-for-like window after that building goes live
All measured gate points	Verizon	Healthy 5G share above this window's baseline of 85% (93 of 110 gate points); no target share is set here	Like-for-like window after go-live
Concourse A	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 63% (n=1,865)	Like-for-like window after the zone's building goes live
Concourse B	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 78% (n=1,818)	Like-for-like window after the zone's building goes live
Concourse C	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 66% (n=1,172)	Like-for-like window after the zone's building goes live
Concourse D	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 54% (n=915)	Like-for-like window after the zone's building goes live
Concourse E	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 72% (n=1,052)	Like-for-like window after the zone's building goes live
Concourse F	Verizon	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 75% (n=2,051)	Like-for-like window after the zone's building goes live
T3: Terminal 3	Verizon	Median over the footprint at or above -95.0 dBm (locked ladder; this window -90.0 dBm); healthy share compared against this window's baseline of 82% (n=333)	Like-for-like window after that building goes live
T4: Terminal 4	Verizon	Median over the footprint at or above -95.0 dBm (locked ladder; this window -89.0 dBm); healthy share compared against this window's baseline of 84% (n=540)	Like-for-like window after that building goes live
T4: Gates D11-D18	Verizon	Median over the footprint at or above -95.0 dBm (locked ladder; this window -106.0 dBm); healthy share compared against this window's baseline of 9% (n=98)	Like-for-like window after that building goes live
All measured gate points	AT&T	Healthy 5G share above this window's baseline of 80% (88 of 110 gate points); no target share is set here	Like-for-like window after go-live
Concourse A	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 58% (n=927)	Like-for-like window after the zone's building goes live
Concourse B	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 58% (n=886)	Like-for-like window after the zone's building goes live
Concourse C	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 71% (n=480)	Like-for-like window after the zone's building goes live
Concourse D	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of	Like-for-like window after the zone's building goes live

		67% (n=440)	
Concourse E	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 73% (n=505)	Like-for-like window after the zone's building goes live
Concourse F	AT&T	Zone tile median at or above -95.0 dBm (locked ladder); healthy share compared against this window's baseline of 57% (n=767)	Like-for-like window after the zone's building goes live
T3: Terminal 3	AT&T	Median over the footprint at or above -95.0 dBm (locked ladder; this window -90.0 dBm); healthy share compared against this window's baseline of 69% (n=227)	Like-for-like window after that building goes live
T4: Terminal 4	AT&T	Median over the footprint at or above -95.0 dBm (locked ladder; this window -91.0 dBm); healthy share compared against this window's baseline of 74% (n=412)	Like-for-like window after that building goes live
T4: Gates D11-D18	AT&T	Median over the footprint at or above -95.0 dBm (locked ladder; this window -94.0 dBm); healthy share compared against this window's baseline of 57% (n=68)	Like-for-like window after that building goes live
Terminal 4 and Terminal 3	T-Mobile	LTE tile median $\geq$ -95 dBm per zone (this window: Concourse A -98.0; Concourse B -87.0; Concourse C -92.0; Concourse D -102.0; Concourse E -90.0; Concourse F -93.0 dBm)	Like-for-like window after go-live
Gate B-B15B (OSM ref)	worst this window: AT&T	Carrier-to-carrier spread compared against this window's 25.9 dB; a multi-carrier in-building source should compress it	Like-for-like window after go-live
Gate B-B15A (OSM ref)	worst this window: AT&T	Carrier-to-carrier spread compared against this window's 20.1 dB; a multi-carrier in-building source should compress it	Like-for-like window after go-live
Gate F-F1 (OSM ref)	worst this window: AT&T	Carrier-to-carrier spread compared against this window's 15.5 dB; a multi-carrier in-building source should compress it	Like-for-like window after go-live
Gate F-F2 (OSM ref)	worst this window: AT&T	Carrier-to-carrier spread compared against this window's 14.5 dB; a multi-carrier in-building source should compress it	Like-for-like window after go-live
Gate B-B1A (OSM ref)	worst this window: AT&T	Carrier-to-carrier spread compared against this window's 13.4 dB; a multi-carrier in-building source should compress it	Like-for-like window after go-live

Re-measurement uses the same instrument as this baseline (Ookla Cell Analytics, identical thresholds).

The window is like for like: the same 12-month length, or a matched shorter window that is disclosed alongside the result. Ookla's date-range comparison renders the before and after directly. Imagine

Wireless re-measures over that window after any in-building change goes live; the crowdsourced tiles serve as the baseline-and-after comparison and acceptance itself is per-carrier commissioning.

15. Next layers to add

Layer	What it resolves	Source
Ookla Site Finder centroids (LTE and 5G)	Macro-site geometry behind the section 3 and 5.2 readings; this issue publishes no site figure, so those readings rest on the RF tiles alone; queued for the next issue	Ookla portal pull (Imagine Wireless)
DAS program inventory	The awarded operator of solicitation AVN RCS 21-008, the per-building phase map, the bands each carrier carries per building, and the go-live schedule (Recommendation 1)	City of Phoenix Aviation Department, DAS program team
Google Places tenant capture	Adds admin, services, and lounge points to the OpenStreetMap list and thickens the category cells	Google Places (New) pull (Imagine Wireless)
Indoor mask	OSM building-polygon mask shipped in this issue (section 4.7); Ookla native Indoor layer to be pinned as portal captures	Ookla portal captures (Imagine Wireless)
Date-range comparison	Before and after for each building as the DAS goes live; converts this snapshot into a trend	Ookla portal pull
Poor multi-network coverage	Vendor-ranked building-versus-carrier problem split; corroborates section 4.3	Ookla portal pull
3D Z-axis view	15 m vertical bands; the export is flat but the portal is	Ookla portal pull

	not	
Per-gate passenger counts	Replaces the section 12 uniform-distribution proxy with measured exposure	Aviation Department, airline schedules
Gate plan reconciliation	Aligns OpenStreetMap gate refs with the Aviation Department's gate list before gate-named criteria are adopted	City of Phoenix Aviation Department
Wi-Fi controller telemetry	Airtime, retries, client density; converts presence into capacity	Wi-Fi operator, Aviation Department
Contract records for PHX	The knowledge graph's contracts query was not available at this issue; the DAS revenue contract's award date, term, and per-building scope	Imagine knowledge graph; City of Phoenix procurement record
Public-safety (NFPA 1221) coverage	Emergency responder radio coverage posture; FirstNet Band 14 is present in the data	Authority having jurisdiction, integrator
Throughput and latency series	Section 1 engages with Ookla's published airport benchmark for PHX; the underlying Speedtest series per terminal and per carrier would pair throughput with the signal readings in this report, which carries neither	Ookla portal pull (Imagine Wireless)
Walk test: jet bridges, baggage corridors, construction zones	Areas crowdsourced cannot reach; the acceptance instrument	Scanner survey

16. Method, thresholds, confidence, and caveats

Measurement source: Ookla Cell Analytics per-carrier RF tile exports and the All Networks usage export for PHX, 12-month window 2025-09-01 through 2026-08-31, clipped to the KPHX aerodrome polygon (OpenStreetMap relation 8367318, largest outer ring) plus a 200 m buffer, intersected with the single export rectangle shared by all four files (latitude 33.422 to 33.4523, longitude -112.0422 to -111.9718). 50,313 on-airport RF tiles are retained from 111,616 exported; 26,948 usage tiles from 61,367. The rectangle contains the whole terminal area; only the buffered strip south of latitude 33.422 (the south side of runway 7R/25L, no terminal, no gate) lies outside it. Measurement freshness at issue is 16 days, within the platform's 90-day policy. Join: tiles to gate and tenant points within an 80 m radius. Gates and gate refs come from a pinned OpenStreetMap inventory (110 gates: Concourse A 28, Concourse B 30, Concourse C 16, Concourse D 16, Concourse E 10, Concourse F 10; the concourse letter in each ref sets the zone, a ref must carry a digit, and the build checks every lettered gate against the pinned terminal footprint with a 150 m nearest-footprint fallback; the official Terminal 4 Level 3 map, revision October 2, 2022, publishes gates A1 to A30, B1 to B28 with B23 to B28 international, C1 to C9 and C11 to C19, D1 to D8, and the airport's history page adds gates D11 to D18 in the 2022 concourse; Terminal 3 publishes gates E1 to E10 in the North Concourse and F1 to F15 in the South Concourse, with the terminal total stated as 25 gates in the 2020 modernization record and as 20 in a 2025 City release that adds six more, held), so gate-named criteria must be reconciled against the Aviation Department's gate plan before adoption. Tenants come from a pinned OpenStreetMap capture (117 points, no polygons, no Z-axis). Tile-to-zone assignment: nearest gate or tenant point within 500 m (disclosed proxy). Building mask (section 4.7): point-in-polygon of tile centroids against the pinned OSM footprints (Terminal 3, Terminal 4, Gates D11 to D18), so it selects tiles over a building, not tiles measured inside it. Tenant zone attribution: the concourse of the nearest lettered gate within 400 m, and the terminal by point-in-polygon against the same footprints (disclosed proxy). Maps: equirectangular axes in degrees, north up, no basemap tiles, rebuilt from the pinned CSVs. Central tendency: median for every headline figure; means only where labeled. Carrier mapping: the export's T-Mobile US, Verizon, and AT&T US operators are printed as T-Mobile, Verizon, and AT&T. Carrier ordering throughout: strongest at the gates first (T-Mobile and Verizon, which are tied, then AT&T), asserted against the data at build time.

Tile geometry and sample basis: each RF tile is 0.0001° by 0.0001°, about 9 m by 11 m at 33.4° N. The three carrier panels cover 27,206 unique tile centroids on the airport, 8,517 of them seen by all three

carriers. The export carries no per-tile scan count, so every n in this report counts tiles, not scans. The 30-tile floor guards spatial support, not scan volume. Ookla aggregates each tile from its panel over the window.

Field population: cell, PCI, and band fields populate only where Ookla resolved a serving cell, so their n is smaller than the RSRP n for the same carrier. The table shows the number of on-airport tiles that populate each field.

Field	T-Mobile	Verizon	AT&T
NR_SS_RSRP	17,312	14,734	6,179
NR_Strongest_Cell	15,874	9,793	1,365
NR_Strongest_PCI	15,875	9,798	1,366
NR_Strongest_Band	15,875	9,798	1,366
LTE_RSRP	10,861	15,151	12,209
LTE_Strongest_Cell	10,872	15,156	12,214
LTE_CQI	4,222	3,875	4,726
Optimization_Priority	8,310	13,655	10,462
General_LTE_Service	15,719	16,088	10,530
All on-airport tiles	18,918	18,513	12,882

Threshold ladder (locked, one ladder everywhere): 5G NR SS-RSRP and LTE RSRP healthy ≥ -95 dBm, at risk -95 to -110 , critical < -110 . 5G SS-SINR healthy ≥ 10 dB, at risk 0 to 10, critical < 0 . RSRQ healthy ≥ -10 dB. No venue-specified threshold was provided. Noise floor: margins under 1 dB are not rankings; every rank statement in this report prints its margin, and the T-Mobile-to-Verizon gate-median margin of 0.5 dB is reported as a tie. Minimum-sample rule: no chart or comparative claim ships on fewer than 30 underlying tiles or points. Only Concourse B clears the gate floor (Concourse A 28, Concourse C 16, Concourse D 16, Concourse E 10, Concourse F 10 gates do not), Terminal 3 holds 20 lettered gates, and every tenant category holds fewer than 30 points, so those tallies appear as counts with n visible and are not ranked; zone, terminal, and category comparisons run on the tile basis for one consistent basis (applied: sections 4.3 to 4.7, 5.4, 5.5, 10, 11).

Units rule: Ookla User_Density is the count of unique Android devices observed per tile over the measurement window, deduplicated. It does not count simultaneous users and it does not measure time spent, and neither reading appears anywhere in this report. Wi-Fi offload = $\sum \text{Wi-Fi MB} \div \sum (\text{Wi-Fi} + \text{Mobile}) \text{ MB}$ by volume, computed at venue and zone level only on the All Networks panel. Per-carrier offload is not derivable from this dataset and is not implied. The offload figure cannot separate the public network from tenant or personal networks.

Sample basis and inference limits: crowdsourced background scans from consumer Android handsets (a panel Ookla characterizes as about 3% of devices; iOS devices are not sampled), aggregated per tile over 12 months. The panel's composition differs by carrier, so cross-carrier comparisons inherit a device-population bias this export cannot correct. Supported: medians, shares, and distributions at venue, zone, gate-cluster, and tenant-category level with n disclosed. Not supported: throughput, latency, or jitter (not in this export), per-carrier Wi-Fi offload, sub-tile positioning, and floor separation. Nothing in this report is measured indoors: there is no indoor mask beyond the building-polygon selection and no Z-axis, and gate values are tiles within 80 m of a point that can straddle the apron: the measured interior share of that join is a median of 21.6% across the 110 gate points (highest 37%), which is why terminal and building leaders in this report are named only on the building-polygon basis and gate-area results are reported as counts. The window overlaps the phased installation of the City DAS program, so any building that went live inside the window blends before and after readings.

Confidence tagging: an entity fact whose source document is pinned in this build and checksummed in the verification bundle is tagged "held" inline; an entity fact this build cites without holding a copy is tagged "cited, not held" inline. Measured claims reproduce from the raw exports through the audit dossier that accompanies this report, which also records capture dates for transcribed values (concourse airline assignments) and the public source behind every entity statement. Facts from the Imagine knowledge graph are pinned in the build's source folder and tagged "KG record" inline; the graph's contracts query was not available at this issue and it holds no leadership rows for PHX. The 90-day freshness policy is Imagine Wireless's reporting policy.

Population key for the several n printed for one carrier: all on-airport tiles (T-Mobile 18,918, Verizon 18,513, AT&T 12,882); tiles inside the terminal extent drawn on the maps (T-Mobile 7,766, Verizon 7,966, AT&T 6,106); 5G-reporting tiles (T-Mobile 17,312, Verizon 14,734, AT&T 6,179); 5G-reporting tiles inside the map extent (T-Mobile 7,210, Verizon 6,844, AT&T 3,365). Cell, PCI, and band fields are smaller still (table above).

Caveats: the dataset is gate-area and public-corridor weighted; it does not cover jet-bridge interiors or baggage corridors. PCI diversity, serving-cell volatility, and band distributions are aggregate proxies, not active traces or carrier network-management data. The optimization priority index is Ookla's vendor-defined layer, reported as such. Engineering inferences about cause are labeled as inferences where they appear.

Provenance discipline: every numerical value in this report is computed from the cited source files at build time, or carries an inline "held" tag when its source document is pinned in the build and checksummed in the verification bundle, or an inline "cited, not held" tag when this build cites a public record without holding a copy. No value is estimated or invented. Photographs are illustrative material from Wikimedia Commons under the licenses listed in the audit dossier and in each caption; they are not measurements.

Appendix A. Lowest-reading mapped points per carrier (all categories, terminal and periphery; $n \geq 30$ tiles only)

The 117 mapped points blend terminal concessions with periphery businesses (parking, transit, roadside services). That mix is deliberate: it is the periphery bucket of the section 5.2 proxy. This table is an inventory of the lowest-reading points on or near airport property. Only points whose per-carrier aggregate rides on $n \geq 30$ tiles appear.

T-Mobile

RSRP (dBm)	Zone	Category	Point	n (tiles)
-97.3	Concourse D	retail	Connections	167
-97.2	Concourse D	food	La Grande Orange	166
-97.0	Concourse D	retail	Indigenous	168
-96.9	(outside zones)	transport_admin	Garage A	62
-96.8	(outside zones)	transport_admin	Facilities & Services Visitor Parking	44
-96.7	Concourse D	food	Barrio Cafe	170
-96.7	Concourse A	food	Delux Burger Express	188
-96.6	Concourse A	lounge	Admiral's Club	182
-96.6	Concourse D	retail	InMotion	169
-96.6	Concourse A	food	Pei Wei	187
-96.5	Concourse A	food	Four Peaks Brewery	183
-96.5	Concourse A	food	Humble Pie	184
-96.2	Concourse A	retail	CNBC 12 News	185
-96.2	Concourse A	retail	Tammie Coe To Go	187
-95.9	Concourse D	services	Animal Relief Area	173
-95.5	Concourse D	retail	Greetings from Phoenix	172
-95.4	Concourse D	food	Peet's Coffee	171

-94.8	(outside zones)	transport_admin	Garage B	72
-94.0	Concourse A	retail	Arizona Highways	172
-93.8	Concourse A	food	Peet's Coffee	167

Verizon

RSRP (dBm)	Zone	Category	Point	n (tiles)
-103.5	(outside zones)	transport_admin	East Cell Phone Lot	105
-95.8	Concourse A	transport_admin	Terminal 4 Rooftop Garage	191
-95.5	(outside zones)	transport_admin	Garage A	76
-95.4	(outside zones)	transport_admin	Garage B	60
-93.5	Concourse A	retail	Tammie Coe To Go	187
-93.3	Concourse F	food	The Roadie	165
-92.9	Concourse F	food	San Tan Brewery	165
-92.8	Concourse A	retail	CNBC 12 News	185
-92.7	Concourse F	retail	Ironwood	175
-92.7	Concourse D	food	Peet's Coffee	181
-92.7	Concourse C	food	Starbucks	188
-92.3	Concourse A	lounge	Admiral's Club	184
-92.3	Concourse A	food	Panda Express	186
-92.1	Concourse A	food	Wildflower Bread Company	188
-92.0	Concourse D	services	Animal Relief Area	183
-92.0	Concourse F	food	Shake Shack	181
-92.0	Concourse C	retail	Tumi	185
-91.9	Concourse F	food	Half Moon Empanadas	177
-91.9	Concourse F	food	Panera Bread	177
-91.7	Concourse D	retail	Greetings from Phoenix	181

AT&T

RSRP (dBm)	Zone	Category	Point	n (tiles)
-103.4	(outside zones)	transport_admin	Facilities & Services Visitor Parking	33
-101.1	(outside zones)	transport_admin	City of Phoenix Employee Parking	39
-101.0	(outside zones)	transport_admin	East Cell Phone Lot	73
-99.1	(outside zones)	transport_admin	Terminal 2 Garage	67
-97.7	(outside zones)	transport_admin	Air Cargo Employee Parking	90
-97.7	(outside zones)	transport_admin	Lyft Express Zone	107
-97.1	(outside zones)	transport_admin	East Economy Parking	32
-97.0	(outside zones)	transport_admin	Phoenix Police Airport Bureau	67
-95.8	Concourse A	food	Delux Burger Express	164
-95.6	Concourse A	retail	Tammie Coe To Go	160
-95.4	Concourse C	food	Starbucks	178
-95.2	Concourse A	food	Pei Wei	166
-95.1	Concourse A	food	Four Peaks Brewery	166
-95.1	Concourse A	food	Humble Pie	164
-94.5	Concourse A	retail	CNBC 12 News	161
-94.5	Concourse D	food	Peet's Coffee	152
-94.3	Concourse D	retail	Greetings from Phoenix	163
-94.2	Concourse C	retail	Tumi	177
-94.1	Concourse A	lounge	Admiral's Club	153
-94.1	Concourse F	other	Phoenix Fire Department - Station 19	43

Appendix B. Strongest-serving band tables per carrier (with footprint share)

The same top-6 bands as section 9.1, extended with each band's share of the carrier's band-reporting tile footprint. Labels are Ookla's, printed verbatim (legend in section 9.1).

T-Mobile: 5G NR strongest-serving band (n=15,875 tiles that report the 5G NR strongest-band field)

Band	Tile count (n)	Share of the 5G NR band-reporting tiles
NR2500	10,009	63.0%
NR2600	3,808	24.0%
NR1900	1,391	8.8%
NR600	666	4.2%
NR2100	1	0.0%
Total	15,875	100.0%

T-Mobile: LTE strongest-serving band (n=10,814 tiles that report the LTE strongest-band field)

Band	Tile count (n)	Share of the LTE band-reporting tiles
LTE1900	5,642	52.2%
LTE2100	4,608	42.6%
LTE700	253	2.3%
LTE600	231	2.1%
LTE1800	80	0.7%
Total	10,814	100.0%

Verizon: 5G NR strongest-serving band (n=9,798 tiles that report the 5G NR strongest-band field)

Band	Tile count (n)	Share of the 5G NR band-reporting tiles
NR3700	7,223	73.7%
NR3500	1,115	11.4%
NR2100	725	7.4%
NR850	723	7.4%
NR1900	11	0.1%
NR600	1	0.0%
Total	9,798	100.0%

Verizon: LTE strongest-serving band (n=15,151 tiles that report the LTE strongest-band field)

Band	Tile count (n)	Share of the LTE band-reporting tiles
LTE2100	10,858	71.7%
LTE800	2,334	15.4%
LTE700	1,916	12.6%
LTE1900	43	0.3%
Total	15,151	100.0%

AT&T: 5G NR strongest-serving band (n=1,366 tiles that report the 5G NR strongest-band field)

Band	Tile count (n)	Share of the 5G NR band-reporting tiles
NR3700	1,114	81.6%
NR3500	195	14.3%
NR1900	41	3.0%
NR850	12	0.9%
NR2500	2	0.1%
NR2100	1	0.1%
all other 5G NR bands	1	0.1%
Total	1,366	100.0%

AT&T: LTE strongest-serving band (n=12,209 tiles that report the LTE strongest-band field)

Band	Tile count (n)	Share of the LTE band-reporting tiles
LTE1900	4,303	35.2%
LTE2100	3,676	30.1%
LTE700	3,209	26.3%
LTE2300	676	5.5%

LTE700PS	335	2.7%
LTE800	10	0.1%
Total	12,209	100.0%

Appendix C. Full gate table

Per-gate mean 5G NR RSRP and SINR per carrier, with the per-carrier tile n. Healthy means RSRP ≥ -95.0 dBm. The last column gives the strongest gate-area reading and its margin over the next carrier, and reads TIE where that margin is at or under 1 dB, which is this instrument's resolution: tile RSRP is integer-valued, so a decimal in these columns comes from averaging integers and carries no finer resolution. A gate-area reading is not a terminal verdict, because a median 21.6% of each gate's joined tiles sit over a building (section 16). Gate refs follow the OpenStreetMap inventory; the zone is the concourse letter in the ref and the terminal is the footprint the gate falls in.

Zone	Terminal	Gate	T-Mobile RSRP / SINR (n)	Verizon RSRP / SINR (n)	AT&T RSRP / SINR (n)	Strongest gate-area reading (margin)
A	T4	A1	-86.7 / +13.0 (178)	-88.6 / +18.5 (177)	-89.6 / +12.0 (159)	T-Mobile +1.9 dB
A	T4	A2	-92.6 / +8.5 (182)	-90.7 / +16.7 (181)	-90.5 / +13.6 (160)	TIE (0.2 dB)
A	T4	A3	-89.2 / +10.9 (182)	-88.0 / +19.3 (183)	-90.4 / +13.7 (158)	Verizon +1.2 dB
A	T4	A4	-93.6 / +7.6 (177)	-92.3 / +16.0 (173)	-89.6 / +15.8 (144)	AT&T +2.7 dB
A	T4	A5	-88.8 / +11.2 (181)	-87.9 / +19.0 (184)	-90.9 / +13.9 (153)	TIE (0.9 dB)
A	T4	A6	-92.7 / +8.6 (174)	-94.4 / +13.8 (173)	-90.7 / +14.9 (144)	AT&T +2.0 dB
A	T4	A7	-87.1 / +11.8 (179)	-89.3 / +17.4 (183)	-91.8 / +13.5 (152)	T-Mobile +2.2 dB
A	T4	A8	-90.2 / +10.1 (167)	-96.4 / +11.4 (172)	-92.6 / +14.0 (133)	T-Mobile +2.4 dB
A	T4	A9	-86.1 / +13.3 (165)	-90.4 / +15.9 (177)	-93.2 / +12.9 (139)	T-Mobile +4.3 dB
A	T4	A10	-89.2 / +11.0 (152)	-97.0 / +9.9 (163)	-95.8 / +11.7 (118)	T-Mobile +6.6 dB
A	T4	A11	-86.2 / +13.7 (141)	-90.3 / +15.5 (157)	-94.5 / +12.3 (121)	T-Mobile +4.1 dB
A	T4	A12	-89.3 / +11.0 (135)	-95.9 / +10.1 (148)	-96.8 / +10.8 (99)	T-Mobile +6.6 dB
A	T4	A13	-86.8 / +13.0 (144)	-92.5 / +13.5 (158)	-95.9 / +11.6 (116)	T-Mobile +5.7 dB
A	T4	A14	-87.5 / +12.2 (133)	-93.8 / +12.3 (146)	-96.3 / +11.2 (106)	T-Mobile +6.3 dB
A	T4	A17	-93.4 / +8.7 (170)	-91.1 / +16.2 (170)	-87.5 / +14.9 (143)	AT&T +3.6 dB
A	T4	A18	-95.7 / +6.6 (152)	-85.8 / +18.9 (167)	-93.4 / +12.3 (135)	Verizon +7.6 dB
A	T4	A19	-95.4 / +7.5 (168)	-93.3 / +13.8 (168)	-90.6 / +15.6 (132)	AT&T +2.7 dB
A	T4	A20	-98.4 / +5.4 (154)	-86.8 / +17.8 (167)	-96.8 / +11.6 (130)	Verizon +10.0 dB
A	T4	A21	-95.8 / +7.6 (170)	-95.6 / +11.8 (174)	-91.6 / +17.5 (136)	AT&T +4.0 dB
A	T4	A22	-97.7 / +6.0 (166)	-87.7 / +16.5 (176)	-97.8 / +11.1 (145)	Verizon +10.0 dB
A	T4	A23	-95.3 / +7.0 (174)	-95.6 / +10.8 (180)	-91.5 / +18.7 (146)	AT&T +3.8 dB
A	T4	A24	-96.8 / +6.2 (170)	-89.3 / +14.2 (170)	-99.5 / +10.0 (141)	Verizon +7.5 dB
A	T4	A25	-95.1 / +6.6 (165)	-96.5 / +9.8 (165)	-93.0 / +17.2 (138)	AT&T +2.1 dB
A	T4	A26	-96.4 / +6.3 (163)	-89.9 / +13.3 (163)	-99.9 / +9.4 (133)	Verizon +6.5 dB
A	T4	A27	-95.1 / +6.5 (152)	-96.4 / +9.9 (153)	-92.7 / +17.1 (124)	AT&T +2.4 dB
A	T4	A28	-96.5 / +6.2 (177)	-92.0 / +12.3 (184)	-96.6 / +13.0 (149)	Verizon +4.5 dB
A	T4	A29	-95.6 / +6.2 (148)	-94.6 / +10.3 (157)	-93.9 / +15.7 (121)	TIE (0.7 dB)
A	T4	A30	-95.6 / +6.2 (155)	-91.4 / +12.1 (157)	-98.1 / +10.8 (120)	Verizon +4.2 dB
B	T4	B1	-78.7 / +15.2 (177)	-86.0 / +21.1 (163)	-87.1 / +13.8 (160)	T-Mobile +7.3 dB
B	T4	B1A	-74.1 / +17.6 (166)	-84.1 / +21.8 (139)	-87.5 / +15.1 (140)	T-Mobile +10.0 dB
B	T4	B2	-87.4 / +10.9 (179)	-88.3 / +19.8 (177)	-84.6 / +15.1 (158)	AT&T +2.8 dB
B	T4	B3	-83.7 / +12.3 (172)	-85.2 / +21.9 (156)	-88.2 / +16.0 (156)	T-Mobile +1.5 dB
B	T4	B4	-90.0 / +9.1 (175)	-87.1 / +21.6 (174)	-89.0 / +14.8 (155)	Verizon +1.9 dB
B	T4	B5	-86.3 / +11.1 (172)	-85.1 / +22.7 (151)	-89.6 / +16.9 (151)	Verizon +1.2 dB
B	T4	B6	-90.4 / +9.5 (170)	-87.2 / +20.7 (173)	-91.1 / +14.8 (148)	Verizon +3.2 dB
B	T4	B7	-86.2 / +11.2 (167)	-84.8 / +21.4 (163)	-92.1 / +15.1 (143)	Verizon +1.4 dB
B	T4	B8	-88.0 / +11.0 (164)	-88.6 / +18.5 (173)	-93.8 / +13.5 (140)	TIE (0.6 dB)
B	T4	B9	-85.7 / +12.0 (159)	-86.3 / +18.6 (162)	-93.1 / +14.2 (128)	TIE (0.6 dB)
B	T4	B10	-86.0 / +12.8 (136)	-90.5 / +15.7 (164)	-95.8 / +11.1 (113)	T-Mobile +4.5 dB
B	T4	B11	-84.6 / +12.9 (135)	-87.2 / +16.9 (149)	-94.6 / +12.9 (103)	T-Mobile +2.6 dB
B	T4	B12	-85.7 / +13.4 (119)	-91.7 / +13.9 (151)	-96.1 / +10.5 (97)	T-Mobile +6.0 dB
B	T4	B13	-84.6 / +13.4 (126)	-88.9 / +15.6 (152)	-95.4 / +12.1 (104)	T-Mobile +4.3 dB
B	T4	B14	-84.4 / +13.8 (119)	-90.5 / +14.8 (147)	-96.7 / +10.7 (93)	T-Mobile +6.1 dB

B	T4	B15A	-73.6 / +15.8 (129)	-87.8 / +19.0 (121)	-93.7 / +11.9 (91)	T-Mobile +14.2 dB
B	T4	B15B	-71.1 / +18.9 (97)	-88.9 / +19.5 (91)	-97.0 / +11.4 (65)	T-Mobile +17.8 dB
B	T4	B16	-76.4 / +15.2 (173)	-82.5 / +23.6 (161)	-86.9 / +18.1 (159)	T-Mobile +6.1 dB
B	T4	B17	-77.8 / +13.9 (147)	-88.3 / +19.0 (136)	-90.8 / +14.7 (115)	T-Mobile +10.5 dB
B	T4	B18	-82.6 / +12.4 (175)	-85.4 / +22.2 (154)	-86.1 / +20.3 (169)	T-Mobile +2.8 dB
B	T4	B19	-83.0 / +11.7 (145)	-90.8 / +17.5 (130)	-89.7 / +16.2 (126)	T-Mobile +6.7 dB
B	T4	B20	-85.2 / +11.1 (165)	-85.6 / +22.1 (150)	-86.5 / +20.2 (159)	TIE (0.4 dB)
B	T4	B21	-86.4 / +9.1 (150)	-91.2 / +16.4 (136)	-90.3 / +15.6 (143)	T-Mobile +3.9 dB
B	T4	B22	-85.9 / +10.6 (166)	-87.1 / +21.1 (149)	-88.9 / +18.8 (156)	T-Mobile +1.2 dB
B	T4	B23	-86.8 / +9.6 (151)	-92.3 / +15.0 (137)	-91.9 / +13.8 (144)	T-Mobile +5.1 dB
B	T4	B24	-85.7 / +11.0 (159)	-88.3 / +19.2 (139)	-90.9 / +17.0 (142)	T-Mobile +2.6 dB
B	T4	B25	-86.2 / +10.4 (118)	-93.5 / +12.6 (106)	-95.5 / +13.2 (117)	T-Mobile +7.3 dB
B	T4	B26	-85.5 / +11.3 (133)	-89.6 / +17.0 (122)	-92.1 / +16.1 (123)	T-Mobile +4.1 dB
B	T4	B27	-86.1 / +11.0 (126)	-91.9 / +13.9 (119)	-95.5 / +13.1 (121)	T-Mobile +5.8 dB
B	T4	B28	-85.9 / +11.5 (118)	-90.5 / +15.3 (114)	-93.1 / +15.3 (117)	T-Mobile +4.6 dB
C	T4	C1	-89.2 / +10.9 (176)	-90.0 / +19.7 (181)	-90.8 / +11.1 (167)	TIE (0.8 dB)
C	T4	C2	-85.3 / +13.1 (172)	-89.7 / +20.0 (181)	-87.2 / +11.6 (160)	T-Mobile +1.9 dB
C	T4	C3	-91.9 / +7.7 (159)	-87.9 / +21.3 (168)	-88.5 / +11.1 (148)	TIE (0.6 dB)
C	T4	C4	-89.0 / +10.1 (161)	-90.3 / +20.0 (174)	-86.9 / +10.9 (145)	AT&T +2.1 dB
C	T4	C6	-89.6 / +9.5 (134)	-90.9 / +19.6 (158)	-87.6 / +10.8 (125)	AT&T +2.0 dB
C	T4	C7	-91.7 / +7.3 (139)	-87.7 / +21.1 (146)	-89.3 / +10.2 (126)	Verizon +1.6 dB
C	T4	C8	-90.0 / +8.2 (119)	-89.7 / +20.0 (143)	-89.3 / +9.8 (107)	TIE (0.4 dB)
C	T4	C9	-91.4 / +7.5 (132)	-88.1 / +20.9 (146)	-89.3 / +10.0 (123)	Verizon +1.2 dB
C	T4	C11	-80.9 / +14.5 (162)	-85.1 / +21.0 (163)	-85.0 / +17.0 (146)	T-Mobile +4.1 dB
C	T4	C12	-81.8 / +14.6 (129)	-87.8 / +18.7 (147)	-89.0 / +13.9 (121)	T-Mobile +6.0 dB
C	T4	C13	-87.1 / +11.2 (145)	-89.5 / +18.0 (150)	-84.1 / +17.9 (127)	AT&T +3.0 dB
C	T4	C14	-87.5 / +11.7 (119)	-92.6 / +15.0 (143)	-88.2 / +16.4 (108)	TIE (0.7 dB)
C	T4	C15	-91.0 / +8.2 (111)	-91.0 / +17.1 (136)	-84.1 / +16.9 (87)	AT&T +6.9 dB
C	T4	C16	-89.5 / +9.8 (96)	-93.4 / +14.2 (124)	-90.4 / +14.7 (82)	TIE (0.9 dB)
C	T4	C18	-90.1 / +9.1 (98)	-92.6 / +14.7 (131)	-89.1 / +14.9 (82)	TIE (1.0 dB)
C	T4	C19	-90.9 / +8.7 (112)	-91.5 / +16.2 (146)	-85.7 / +16.2 (86)	AT&T +5.2 dB
D	T4	D1	-97.2 / +6.5 (152)	-92.4 / +16.0 (162)	-93.6 / +14.8 (127)	Verizon +1.2 dB
D	T4	D2	-96.3 / +7.5 (163)	-88.4 / +20.5 (168)	-93.1 / +12.6 (137)	Verizon +4.7 dB
D	T4	D3	-97.3 / +5.5 (129)	-93.0 / +15.9 (140)	-91.6 / +13.7 (107)	AT&T +1.4 dB
D	T4	D4	-97.4 / +6.2 (161)	-88.2 / +20.9 (158)	-89.9 / +13.8 (124)	Verizon +1.7 dB
D	T4	D5	-96.2 / +6.0 (115)	-93.8 / +14.4 (124)	-91.2 / +12.3 (89)	AT&T +2.6 dB
D	T4	D6	-96.3 / +6.5 (144)	-86.8 / +22.0 (142)	-88.9 / +13.4 (98)	Verizon +2.1 dB
D	T4	D7	-95.8 / +6.4 (118)	-91.8 / +16.3 (132)	-89.2 / +12.9 (93)	AT&T +2.6 dB
D	T4	D8	-95.8 / +6.9 (129)	-87.7 / +20.5 (136)	-88.4 / +13.1 (84)	TIE (0.7 dB)
D	T4	D11	-96.2 / +8.3 (150)	-98.2 / +12.9 (167)	-94.0 / +15.9 (137)	AT&T +2.2 dB
D	T4	D12	-98.9 / +5.7 (163)	-102.2 / +8.5 (165)	-93.1 / +17.0 (148)	AT&T +5.8 dB
D	T4	D13	-99.0 / +5.6 (148)	-98.9 / +10.9 (168)	-95.0 / +14.7 (133)	AT&T +3.9 dB
D	T4	D14	-98.1 / +5.6 (147)	-100.9 / +8.5 (151)	-92.6 / +16.5 (129)	AT&T +5.5 dB
D	T4	D15	-98.0 / +5.7 (152)	-99.0 / +10.2 (155)	-94.4 / +14.9 (128)	AT&T +3.6 dB
D	T4	D16	-98.1 / +5.7 (149)	-100.3 / +9.0 (155)	-92.9 / +16.3 (129)	AT&T +5.2 dB
D	T4	D17	-98.0 / +5.8 (149)	-98.4 / +10.4 (147)	-94.1 / +14.8 (122)	AT&T +3.9 dB
D	T4	D18	-98.0 / +5.6 (152)	-99.0 / +9.8 (153)	-93.6 / +15.8 (125)	AT&T +4.4 dB
E	T3	E1	-88.3 / +11.0 (167)	-81.4 / +23.0 (153)	-83.9 / +19.6 (126)	Verizon +2.5 dB
E	T3	E2	-84.2 / +11.8 (136)	-89.1 / +15.7 (148)	-80.1 / +18.3 (123)	AT&T +4.1 dB
E	T3	E3	-90.4 / +12.0 (161)	-82.3 / +22.2 (145)	-88.5 / +17.4 (127)	Verizon +6.2 dB
E	T3	E4	-86.1 / +12.8 (143)	-89.2 / +16.0 (144)	-85.4 / +16.3 (127)	TIE (0.7 dB)
E	T3	E5	-90.5 / +11.6 (160)	-83.8 / +20.5 (143)	-89.6 / +13.9 (119)	Verizon +5.8 dB
E	T3	E6	-87.4 / +11.4 (123)	-89.2 / +15.2 (116)	-85.2 / +15.1 (113)	AT&T +2.2 dB
E	T3	E7	-90.6 / +10.6 (137)	-87.1 / +16.1 (113)	-90.1 / +11.8 (101)	Verizon +3.0 dB
E	T3	E8	-88.1 / +11.4 (126)	-90.7 / +13.4 (120)	-86.0 / +14.1 (116)	AT&T +2.1 dB
E	T3	E9	-90.7 / +10.2 (134)	-89.2 / +13.9 (124)	-87.4 / +12.8 (111)	AT&T +1.8 dB
E	T3	E10	-89.8 / +10.7 (110)	-90.5 / +12.4 (111)	-87.6 / +13.1 (101)	AT&T +2.2 dB
F	T3	F1	-92.0 / +10.2 (159)	-80.6 / +24.2 (158)	-96.1 / +9.0 (123)	Verizon +11.4 dB
F	T3	F2	-93.6 / +8.5 (130)	-82.8 / +22.5 (132)	-97.3 / +9.1 (92)	Verizon +10.8 dB

F	T3	F3	-92.9 / +9.0 (143)	-84.6 / +21.0 (139)	-96.8 / +9.3 (100)	Verizon +8.3 dB
F	T3	F4	-89.9 / +10.6 (158)	-88.7 / +18.0 (153)	-96.4 / +8.9 (114)	Verizon +1.2 dB
F	T3	F5	-87.9 / +11.3 (162)	-91.1 / +15.5 (150)	-95.5 / +9.4 (114)	T-Mobile +3.2 dB
F	T3	F6	-88.2 / +10.0 (145)	-93.3 / +12.7 (145)	-94.7 / +9.5 (112)	T-Mobile +5.1 dB
F	T3	F7	-88.4 / +10.2 (142)	-93.7 / +12.2 (148)	-94.1 / +9.8 (120)	T-Mobile +5.3 dB
F	T3	F8	-90.9 / +10.1 (117)	-96.1 / +11.5 (144)	-95.0 / +9.0 (107)	T-Mobile +4.1 dB
F	T3	F9	-91.5 / +10.1 (121)	-95.2 / +12.3 (146)	-93.9 / +9.1 (114)	T-Mobile +2.4 dB
F	T3	F10	-92.2 / +8.6 (105)	-93.4 / +14.2 (129)	-93.6 / +8.7 (96)	T-Mobile +1.2 dB