

Top 3 things that happened on NTN and satellite direct-to-device at RAN1 #126, RAN2 #135 and RAN4 #120

THE VERDICT

1. Under the NR-NTN GNSS-resilience work (agenda item 9.4.1), RAN1 agreed which inputs a UE uses to pre-compensate uplink timing and frequency on the service link for initial access: a reference location plus satellite ephemeris in (quasi) Earth-fixed cells, and common TA and Doppler information in Earth-moving cells, cell-specific with one SSB beam per cell and SSB-beam-specific with several. ([R1-2606759](#))
2. RAN1 agreed what to consider, not values, for Msg2/RAR in initial access: frequency adjustment command range, granularity and sign, and an extended timing advance command range. Separately, RAN2 agreed to define a new downlink MAC CE for the frequency adjustment command, with an expiry timer; the timer design and whether the MAC CE also carries timing advance are FFS. ([R1-2606759](#), [R2-2605832](#))
3. RAN4 endorsed draft CRs and CRs to TS 38.101-5 (Rel-20) for NTN bands: the 3 MHz channel for PC3 in n250, n251 and n253 (Viasat), PC1 and PC2 at 3 MHz in those bands (Viasat with Qualcomm), the 3 MHz channel and PC2 in n252 (Apple with Terrestar and Skyworks), and PC2 in n254 (Apple with Amazon, Globalstar and Skyworks, in the endorsed CR R4-2612715). Endorsement is an intermediate step: none is yet an agreed CR. ([R4-2610031](#), [R4-2612717](#), [R4-2612716](#), [R4-2612715](#))

WHO PUSHED WHAT

OPEN QUESTION	COMPANY	WHAT THEY PUSH	TDOC
How should NTN-to-terrestrial downlink coexistence be modelled?	vivo	vivo proposes TR 38.863 Scenario 3 unchanged as the baseline, scaling the single-satellite adjacent-channel interference term for aggregation.	R4-2611099 noted
	AST SpaceMobile	AST SpaceMobile argues for a noise-limited terrestrial victim model.	R4-2610548 noted
	Verizon (with AST)	Verizon, with AST, says the TR 38.863 co-channel-limited victim model hides satellite adjacent-channel interference, giving too low an ACLR requirement for NTN.	R4-2611983 noted

KEY OUTCOMES

- **Uplink pre-compensation for initial access (NR-NTN GNSS resilience).** Reference location with ephemeris for (quasi) Earth-fixed cells; common TA and Doppler for Earth-moving cells. Service link only; whether a cell-specific value can be used with multiple SSB beams, multiple values per beam, and signalling are still open. ([R1-2606759](#))
- **Timing and frequency commands (RAN1 for Msg2/RAR, RAN2 for a new MAC CE).** RAN1 agreed what to consider for Msg2/RAR: a frequency adjustment command range, granularity and sign, and an extended timing advance command range with today's granularity as baseline. RAN2's agreement is a new downlink MAC CE for the frequency command; whether it also carries timing advance is FFS. ([R1-2606759](#), [R2-2605832](#))
- **RAN4: 3 MHz channel and higher power classes (endorsed, not yet agreed).** Endorsed documents add the 3 MHz channel for PC3 UEs in n250, n251 and n253 (Viasat), PC1 and PC2 at 3 MHz in the same bands (Viasat with Qualcomm), and the 3 MHz channel and PC2 in n252 (Apple with Terrestar and Skyworks). ([R4-2610031](#), [R4-2612717](#), [R4-2612716](#))

WHAT THEY SAY VERSUS WHAT THEY PROPOSE

RCR Wireless News reporting from 2026-06-30 to 2026-09-25, next to the same companies' RAN4 #120 TDocs. Quotes are matched against the linked article. The pairing is Scout's reading, not a claim about why a TDoc was written.

Verizon

In public: RCR reports that AT&T, Verizon and T-Mobile US agreed in principle on a joint venture for direct-to-device service. (RCR Wireless News, Kelly Hill, 2026-07-13, [link](#))

In 3GPP: Verizon, with AST as co-submitter, says the TR 38.863 victim model hides adjacent-channel interference from satellites into rural terrestrial networks, giving too low an ACLR requirement for the satellite side. ([R4-2611983](#), register: noted)

Reading: Verizon agreed in principle to a direct-to-device venture and, separately, questions the RAN4 victim model. No coexistence decision is in the evidence.

Amazon

In public: RCR writes that "Amazon's pending \$11.57 billion acquisition of Globalstar brings spectrum rights, satellite assets" and telco relationships. (RCR Wireless News, James Blackman, 2026-07-29, [link](#))

In 3GPP: Amazon co-signed, with Globalstar and Skyworks, Apple's CR adding the PC2 power class for NTN band n254 to TS 38.101-5 (Rel-20). ([R4-2612715](#), register: endorsed at R4-120, not yet agreed)

Reading: Apple leads the CR, with Amazon and Globalstar (whose acquisition by Amazon is pending) as co-submitters. The register ties n254 to no operator.

AST SpaceMobile

In public: GSMA Intelligence, as reported by RCR, counts "39 planned operator partnerships despite an initial constellation of seven satellites." (RCR Wireless News, Kelly Hill, 2026-07-13, [link](#))

In 3GPP: AST SpaceMobile argues for a noise-limited terrestrial victim model in TN-NTN coexistence studies, and AST is listed as co-submitter on Verizon's contribution. ([R4-2610548](#), register: noted)

Reading: AST SpaceMobile's own contribution and the Verizon contribution it co-signed both question the interference-limited victim model. Both were noted.

Viasat

In public: RCR reports "German automaker BMW has just demonstrated voice over satellite with Viasat". (RCR Wireless News, James Blackman, 2026-07-17, [link](#))

In 3GPP: Viasat's draft CR adding the 3 MHz channel for PC3 UEs in n250, n251 and n253, and its draft CR with Qualcomm adding PC1 and PC2 at 3 MHz in those bands. ([R4-2610031](#), [R4-2612717](#), register: both endorsed at R4-120, not yet agreed)

Reading: Viasat submitted both endorsed draft CRs. The register titles do not say which devices they target.

Full brief with every quote, source and caveat: [HTML](#) · [PDF](#)

Coverage: RAN1 #126, RAN2 #135, RAN4 #120 (Maastricht, 2026-08-24 to 2026-08-28), topic agenda items only. Scout read 48 recorded decisions and 561 company positions or passages; the full brief cites 17 TDocs and shows each verbatim quote, matched against the TDoc text. Summaries are Scout's reading. Register status not treated means the meeting recorded no decision on the document, not that it was rejected. Not covered: plenary decisions after the meeting, email discussions.

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