

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 Terrestrial 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
Should Rel-20 GNSS-resilience work serve as a baseline for 6G NTN?	MediaTek	MediaTek proposes Rel-20 enhancements as the baseline for 6G GNSS-degraded and GNSS-less operation.	R1-2606137 not treated
	LG Electronics	LG sees a useful baseline for uplink synchronization, but flags UEs without GNSS and with degraded or outdated location.	R1-2606591 not treated
	ST Engineering iDirect	ST Engineering iDirect proposes designing 6GR GNSS-free initial access without the Rel-20 study's design constraints.	R1-2605279 not treated
How should measurements and mobility work without reliable UE location?	MediaTek	MediaTek observes that a valid last-known GNSS location can sustain location-based mobility.	R2-2604817 noted
	Sharp	Sharp proposes studying time and beam-RSRP conditions for measurement initiation and relaxation.	R2-2604790 available
	ETRI	ETRI observes that alternatives not based on UE location are needed for basic inter-orbit mobility.	R2-2604887 available
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 Terrestrial and Skyworks). ([R4-2610031](#), [R4-2612717](#), [R4-2612716](#))
- **RAN4: PC2 for band n254 (endorsed, not yet agreed).** A CR adding the PC2 power class for n254 was endorsed (Apple with Amazon, Globalstar and Skyworks). ([R4-2612715](#))

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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