

Top 3 things that happened on 6G waveform, channel coding and modulation at RAN1 #126-bis

THE VERDICT

1. For the low-PAPR uplink enhancement, RAN1 will not define transmit filter coefficients and leaves it to RAN4 how to specify filter characterizations. Low-PAPR enhancement for 16QAM is not pursued. (R1-2607287)
2. For the Polar study of DCI above 140 bits, RAN1 will down-select between a 512 and a 1024 maximum mother-code length at RAN1 #127. Other agenda items must still confirm that such DCI sizes are needed. (R1-2607312)
3. NR downlink 1024QAM MCS entries are used as a reference for designing the uplink 1024QAM table, at least for CP-OFDM. RAN1 will also study an MCS table for 1024QAM with uplink DFTS-OFDM. (R1-2607313)

WHO PUSHED WHAT

OPEN QUESTION	COMPANY	WHAT THEY PUSH	TDOC
Which $\pi/2$ -BPSK uplink waveform options did companies propose?	Qualcomm	Qualcomm recommends introducing DFT-S-OFDM with $\pi/2$ -BPSK and frequency-domain truncation.	R1-2608743 not treated
	Sharp	Sharp supports transparent-filter FDSS with and without spectrum extension.	R1-2608314 not treated
	Pengcheng Laboratory (with BUPT)	Pengcheng Laboratory and BUPT suggest studying configurable truncation ratios and dynamic selection.	R1-2607503 not treated
How should Polar coding handle DCI above 140 bits?	China Mobile	China Mobile suggests a 1024 maximum, DCI segmentation and an extended distributed CRC interleaver pattern.	R1-2607152 not treated
	Qualcomm	Qualcomm suggests considering the NR maximum of 512, one code block at E=432 or below without the distributed CRC interleaver, and two-block segmentation for E of 864 or more if supported.	R1-2608414 not treated
How should 6G MCS design pair modulation order and code rate?	Tejas Networks	Tejas Networks proposes retaining a table-based MCS where one dynamic index jointly identifies at least modulation order and target code rate.	R1-2607714 not treated
	Nokia	Nokia proposes studying decoupled modulation order and code rate under joint signaling.	R1-2607059 not treated
	NEC	NEC suggests studying several pairs per spectral-efficiency point via table switching or a superset. RAN1 agreed evaluation assumptions for this study.	R1-2607919 not treated

KEY OUTCOMES

- **No transmit filter coefficients in RAN1.** For the low-PAPR uplink enhancement, RAN1 will not define filter coefficients, and RAN4 decides how to specify filter characterizations. The same filter applies to DMRS and data, and RAN1 understands that receiver use of it is an implementation choice and that network and UE alignment is possible, e.g. via UE capability and RRC. (R1-2607287)
- **No low-PAPR 16QAM enhancement.** Uplink low-PAPR enhancement for 16QAM is not pursued. (R1-2607287)
- **Polar segmentation for larger UCI.** For UCI above 1706 bits, the Polar-code study allows at most S segments, with S still FFS and set with the maximum UCI payload in mind. Other agenda items must still confirm that UCI beyond the NR range is needed. (R1-2607312)
- **DCI Polar mother-code options.** For DCI above 140 bits, the study will choose between a 512 and a 1024 maximum mother-code length at RAN1 #127. As for UCI, the need for DCI beyond the NR range is still to be confirmed elsewhere. (R1-2607312)

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

Coverage: RAN1 #126-bis (South Korea, 2026-10-12 to 2026-10-16), topic agenda items only. Scout read 14 recorded decisions and 112 company positions or passages; the full brief cites 11 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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