

Evaluating C-band Radio Altimeter using 5G Signal Generator

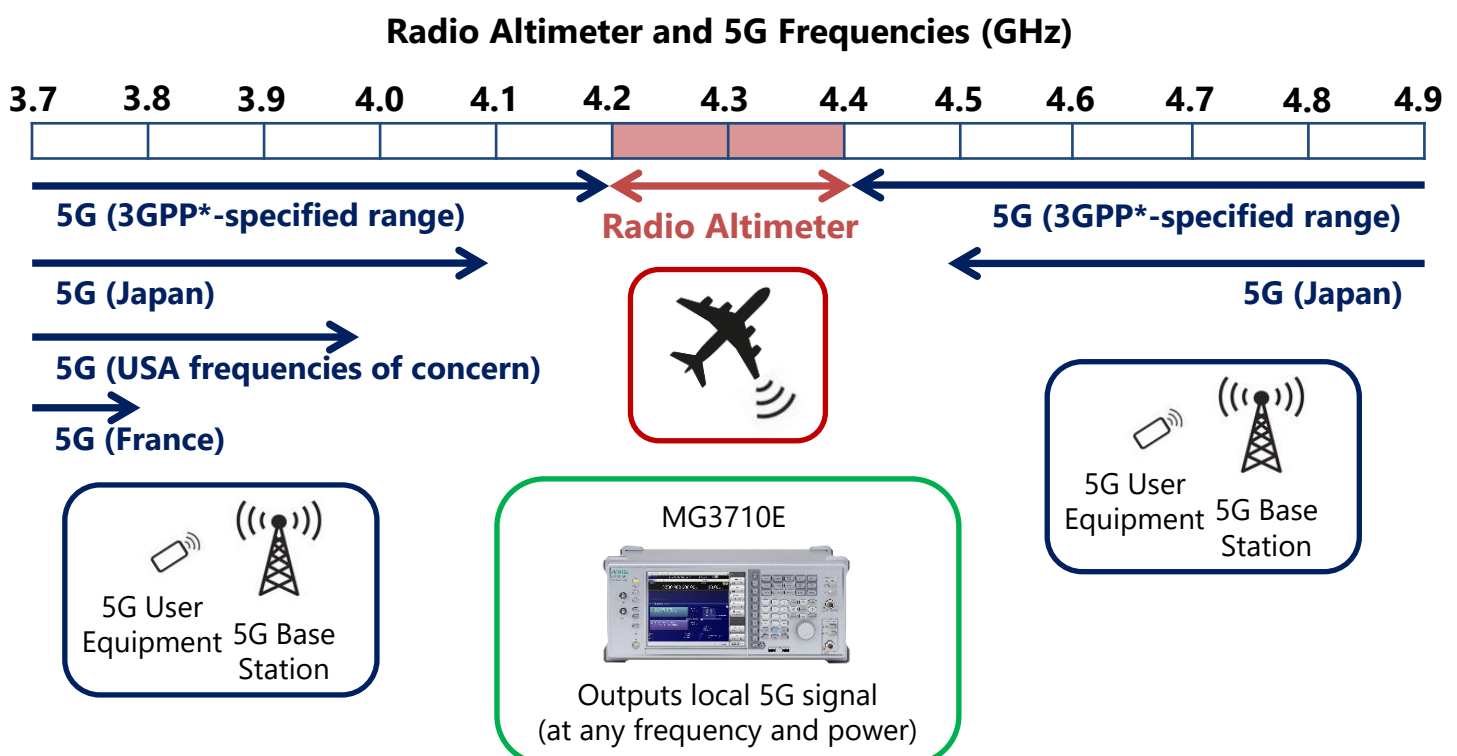
Vector Signal Generator MG3710E



As shown in the following figure, terrestrial 5G communications networks and aircraft radio altimeters use adjacent frequencies in the C-band (4 to 8 GHz). As a result, if a 5G signal operating at the specified frequency leaks into the radio-altimeter band, it might impair the altimeter ranging operation. Consequently, airport authorities in the USA have delayed deployment of 5G near airports to prevent the risk of a major accident if interference from a 5G signal causes a landing aircraft to overshoot the runway.

In these circumstances, evaluation of the effect of 5G signals near the radio-altimeter frequency band is extremely important. This evaluation uses a 5G signal source because the signal frequency and power of an actual 5G base station cannot be adjusted so the effect cannot be quantified.

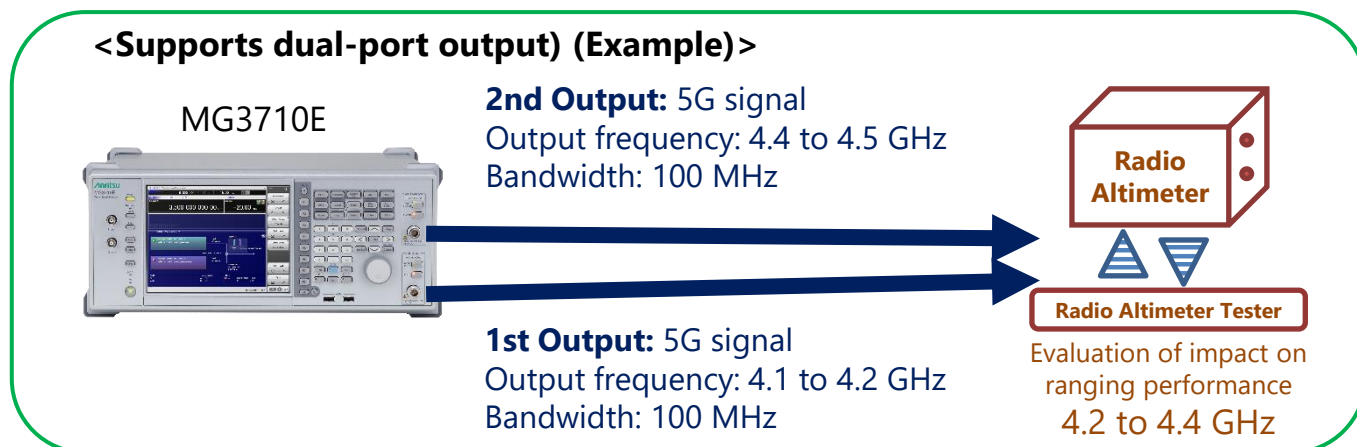
However, the Vector Signal Generator MG3710E can output local 5G signals at any frequency and power to evaluate the effect on nearby altimeters.



*Third Generation Partnership Project, International Organization regulating communication standards such as 5G/LTE

■ Vector Signal Generator MG3710E

- Outputs interference waves for Rx performance tests of communications equipment, including 5G/LTE, WLAN, Land Mobile Radio, etc.
- MX371055A 3GPP-compliant interference waveform pattern option
- Outputs both CW and AWGN signals assuming spurious and interference waves
- All-in-one dual-port design with independent frequency and power setting at each port to output two 5G signals as interference.
- Output frequency setting range: 9 kHz to 6 GHz
- Output level setting range: -144 to +30 dBm



■ Interference Waveform Pattern for 5G NR Receiver Test MX371055A

- 3GPP-compliant interference waveforms (3GPP TS 38.521-1 V17 5G interference waveforms for UE Rx performance tests)
- Bandwidth: 5 to 100 MHz
- Waveform specification: (extract at right)
- Outputs 5G interference waveforms at required bandwidths after installing in MG3710E

Channel Bandwidth [MHz]	SCS [kHz]	Allocated resource blocks	Modulation
5	15	25	QPSK
10	30	24	QPSK
15	30	38	QPSK
20	30	51	QPSK
40	30	106	QPSK
50	30	133	QPSK
60	30	162	QPSK
80	30	217	QPSK
90	30	245	QPSK
100	30	273	QPSK

Ordering Information

Model	Name	Remarks
MG3710E	Vector Signal Generator	
MG3710E-036	1stRF 100 kHz to 6 GHz	
MG3710E-041	High Power Extension for 1stRF	Extends upper output level setting to +30 dBm
MG3710E-042	Low Power Extension for 1stRF	Extends lower output level setting to -144 dBm
MG3710E-066	2ndRF 100 kHz to 6 GHz	Adds 2nd RF output
MG3710E-071	High Power Extension for 2ndRF	Extends 2nd RF upper output level setting to +30 dBm
MG3710E-072	Low Power Extension for 2ndRF	Extends 2nd RF lower output level setting to -144 dBm
MX371055A	Interference Waveform Pattern for 5G NR Receiver Test	Adds 5G interference waveform patterns

The MX371055A can be installed in previously shipped MG3710A/MG3710E models.