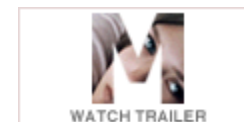


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Interfering With Flight?

By CHRISTINE NEGRONI

The announcement over the plane's speaker seems as much a part of the routine before takeoff as the demonstration of how to buckle a seat belt: Please turn off all electronic devices.

But some passengers invariably ignore the request, perhaps thinking that their iPods or e-books do not count. And really, does it matter if the devices are left on?

The answer, it turns out, is that sometimes it may.

"It's a good news-bad news thing," said David Carson, an engineer with [Boeing](#). Electronic devices do not cause problems in every case, he said. "And that's good," he said. "It's bad in that people assume it never will."

Passengers are taking an increasing array of devices on board planes — cellphones, tablets, GPS units and more. Many of these devices transmit a signal, and all of them emit electromagnetic waves, which, in theory, could interfere with the plane's electronics. At the same time, older planes might not have the best shielding against the latest generation of devices, some engineers said.

"Is it worrisome?" asked Bill Strauss, an engineer who studied passenger use of electronic devices several years ago. "It is."

Safety experts suspect that electronic interference has played a role in some accidents, though that is difficult to prove. One crash in which cellphone interference with airplane navigation was cited as a possible factor involved a charter in Christchurch, New Zealand, in 2003. Eight people died when the plane flew into the ground short of the runway.

The pilot had called home, and the call remained connected for the last three minutes of the flight. In the final report, the New Zealand Transport Accident Investigation Commission stated, "The pilot's own cellphone might have caused erroneous indications" on a navigational aid.

Since 2000, there have been at least 10 voluntary reports filed by pilots in the United States with the Aviation Safety Reporting System, administered by [NASA](#). In 2007, one pilot recounted an instance when the navigational equipment on his Boeing 737 had failed after takeoff. A flight attendant told a passenger to turn off a hand-held GPS device and the problem on the flight deck went away.

The Federal Aviation Administration says there are risks associated with electromagnetic interference and prohibits the use of electronics below 10,000 feet because pilots have less time at lower altitudes to deal with a problem. It is up to each airline to set the policy at higher altitudes. "There's not enough evidence to warrant a change," said Les Dorr, a spokesman for the agency.

There are many reasons that passengers do not comply with the restrictions. Mr. Carson of Boeing cited one. "Devices blur the distinction. P.D.A.'s that are cellphones, cellphones that play music. In the mind of the nominal consumer, it is hard to know what the device is actually doing."

Some passengers are like Nicole Rodrigues of Los Angeles, who acknowledges that she listens to music on her cellphone when she is not supposed to. "In my head, I imagine it not being a problem," she said. "The whole airplane is filled with electronics that are constantly on. Is my little cellphone going to make that big of a difference?"

Even flight attendants, charged with enforcing the rules, can fail to recognize the potential for problems, said Dinkar Mokadam, an occupational safety specialist with the [Association of Flight Attendants](#). "I don't believe it is general knowledge that someone could plug in an iPod and potentially harm the aircraft — even among the flight attendant and pilot community," Mr. Mokadam said.

There is no recent survey of how often passengers ignore restrictions on use of their gadgets, though seven years ago, Mr. Strauss, then a doctoral student at Carnegie Mellon University, monitored the signals emitted from cellphones during flights and discovered that they were being left on.

Airline executives say that for the moment, they do not plan to create more restrictive policies. "We're accommodating the wishes of our passengers," said Tom Hendricks, head of safety and operations for the Air Transport Association, the airlines' trade group. "They wish to use these devices."

John Darbo, an air safety consultant and former airline executive who was a member of the group that helped the [F.A.A.](#) develop rules, said airlines could not police passengers or stop them from bringing electronics on the airplane. "Do you expect us to do that?" he asked. "That's absurd. What we have to do is tell them what's going on, elicit their cooperation and harden the airplanes."

Before deciding whether to allow passengers to use phones before takeoff, several airlines conducted ground tests to see if cellphones would interfere with systems. At [American Airlines](#), people dialed cellphones from out-of-service planes parked at various airports. "They found no interaction with the aircraft instruments on any aircraft type," said Tim Smith, a spokesman for American.

As a result, the airline like most others, decided to permit the use of phones at the gate before

departure and after landing.

Newer airplanes have more sophisticated protection against electromagnetic interference. “The technical advancements for wireless devices and portable electronic equipment is so rapid, it changes every week,” said Doug Hughes, an electrical engineer and air safety investigator. “The advances in airplanes take 20 years.”

Still, Mr. Strauss said the deterioration of planes and devices over time had not been taken into account. “A plane is designed to the right specs, but nobody goes back and checks if it is still robust,” he said. “Then there are the outliers — a cellphone that’s been dropped and abused, or a battery that puts out more than it’s supposed to, and avionics that are more susceptible to interference because gaskets have failed. And boom, that’s where you get interference. It would be a perfect storm that would combine to create an aviation accident.”