

Mobile phone story makes waves

Skepticism over study

I AM CONCERNED by your article "Switched off" (Flight Safety Australia September-October), which was also widely reported in the press.

The Civil Aviation Authority study quoted by the article is far from definitive in that it was a simulated experiment. It did not involve actual aircraft or actual cellphones. There have been numerous other studies carried out by Boeing and others using actual aircraft which have failed to show any effect, or reported incidents could not be replicated.

It is now estimated that on any domestic flight within the US, there is at least one cellphone left switched on. We are not seeing hundreds of planes falling out of the skies.

A new challenge will be the new generation of laptops and personal digital assistants. Most new laptops and PDAs contain intentional RF producing devices. In many cases, these are integral to the equipment and cannot be easily turned off.

Many users are not aware of the existence of these devices within their laptops.

Richard Hockey, Queensland

It's a software problem

A FEW MINUTES ago, I saw TechTV mention the Sydney Morning Herald article that discusses your "Switched off" article.

I'm an engineer who has worked on some of the flight management computers in airliners. I believe many of the incidents being blamed on electronic devices are actually caused by obscure software errors, and that the presence of an electronic device is just a coincidence.

I've also seen cases where test pilots swear the autopilot changed

modes on its own, but when you play back the telemetry, it is clear that they or the other pilot changed the mode manually.

I'm surprised people aren't asking why aircraft systems aren't immune to common sources of interference.

*Dean Kolosiek
Phoenix, Arizona*

Tighter rules

I READ WITH interest and some concern, the article "Switched off" in the September/October issue of Flight Safety Australia. The issue of portable electronic devices is an important safety concern and one that needs to be analysed carefully.

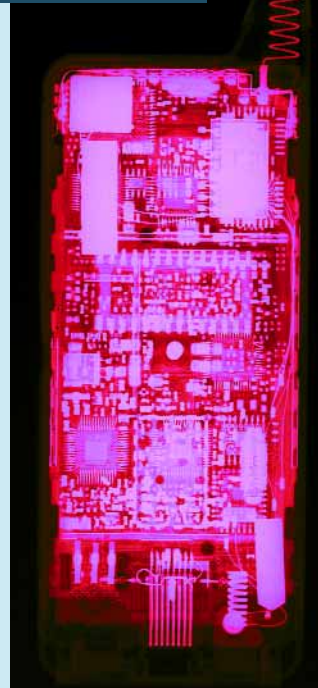
If the VOR can read in error to the extent indicated and flip flop between To and From, then there is an obvious operational problem that needs to be addressed.

If this can be demonstrated, then the rule needs to be strengthened to prohibit the use of any PED at any stage of flight.

However, I believe that it also raises another issue. If the instruments in an aircraft can be affected in such a way, then it suggests that the manufacturers need to ensure that their products are fit for purpose in today's environment. If PEDs are responsible for such unreliability then what effect does the general environment of microwaves and a whole host of other electromagnetic radiation frequencies that exist more and more in our everyday environment, have on aircraft instruments?

Surely, we should be concerned about this aspect and demand that the manufacturers of aircraft navigational and control equipment manufacture their products to a standard that will ensure their equipment is robust and will not be affected in this way. Shouldn't that be the major safety concern?

Of course, before we dive off in this direction we need to test



and analyse the situation scientifically. I think that an article detailing the evidence clearly would help focus people's thoughts in the right direction and encourage a solution of the issues at hand.

Is there any scientific detail available that could help us understand what is happening here?

*R. P. Bull
Davidson, NSW*

Our thanks to the readers who have participated in the debate over the impact on avionics equipment of electromagnetic radiation from portable electronic devices. There remains some skepticism about the role of electromagnetic interference in incidents. That's partly because of the difficulty in replicating the effect in real-life situations.

The electromagnetic environment on an aircraft changes constantly. It is influenced by everything ranging from the location of passengers to the geology of the ground. The fact that the CAA study at the heart of the current debate was performed under controlled laboratory conditions was a strength of the study. It enabled the researchers to meet a major criterion of the scientific method: repeatability.

Hi-tech complements airmanship

IT HAS BEEN written in *Flight Safety Australia* over the years that new technology is making pilots complacent, allowing us to ignore the rudimentary skills of flying to the detriment of aviation safety (see and avoid, for instance).

Intentionally or not, the new Cutting Edge article, "Virtual radar on the radar", and "Eye on the Sky", (FSA September-October) perfectly complemented each other – the hi-tech and a timely reminder of the fundamental basics in one issue.

I liked the modified design immensely. Good work!

*Vincent Howard
Richmond, NSW*

Mars mission not such a long shot

THANKS FOR the article on the medical issues involved in a Mars flight. (FSA September-October). I'd still like to put my hand up to go.

Why? Because the low gravity/bone density problem seems to have been solved already. A common set-up in sci-fi novels is that the space station or interplanetary craft rotates to provide artificial gravity.

I have attached a spreadsheet which shows the rotational speeds needed to maintain 1g in a craft with different radii.

Picture a set-up where the living quarters plus motor and fuel accelerate to cruising speed at 1g. The right hand columns show how long it takes to get to various speeds. I don't know off the top of my head what the required speed is, but you can see we would be cracking along at over 500,000 km per hour after four hours, which is not slow.

Once the craft reaches cruising speed it splits into two pieces – living quarters and the other bit (probably fuel and motor) – joined by a tether.

A little bit of motor is used to start the two tethered pieces



rotating about the centre of gravity of the system. The left hand columns show rotational rates for different radii to achieve 1g. If the living part is 10 metres wide in the radial direction, the g inner and g outer columns show the variation in g for the extreme ends of the living area.

Any parts of the system which need to be in zero g or not rotating for some other reason can be in a module at the centre of gravity.

On arrival at Mars, the two bits stop the rotation and join up for the linear deceleration. A sophistication would be to reduce the rotational rate on the way to get down to Mars gravity, but that could complicate the prob-

lem regarding bone density.

So when can we leave?

Les Sullivan, NSW

The spreadsheet can be viewed at www.casa.gov.au/fsa/03nov/mars.xls. It was checked and found correct by Dr Liam Waldron, of the Australian National University's Mount Stromlo Observatory in Canberra.

Engineers get left out

AS ALWAYS, I read your publication with interest. In the latest issue, the article "Order in chaos" interested me, as an ex-aerodynamicist and as an engineer, a lot. I presume the "Honnyery" you refer to is Dr Damon Honnery, in the engineering faculty at

Monash University. If this is the case, I am interested that you choose to call him a scientist.

Would it not be more accurate to refer to him (and I suppose the others) as engineers? By calling him a scientist you disenfranchise the thousands of professional engineers in the country who have studied engineering (not pure science) at university and whose professional standing is indicated by their chartered professional engineer status. It is aeronautical engineers who design aircraft, not scientists as such, as you should know.

You may be aware of the Institution of Engineers, Australia.

This is the representative body for professional engineers.

Well done for providing an article of great interest.

Derek Viner, Victoria

Drop us a line

Ideal length for publication is 150 words. Letters may be edited to save space.

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