International Civil Aviation Organization

Fifth Meeting of the Frequency Management Working Group (FM WG/5)

(Doha, Qatar, 10 – 11 May 2026)

Agenda Item 2: Frequency Congestion

AIR-TO-AIR INTERFERENCE

(Presented by Secretariat)

SUMMARY

This information paper presents a submission by International Air Transport Association to the Twenty-Second Working Group Meeting of the ICAO Frequency Spectrum Management Panel (FSMP WG/22), prepared in response to the request for contributions seeking operational input and additional information to further support the development of technical material for VHF voice planning.

The paper at *Appendix A* provides operators' feedback on their experiences with co-channel VHF air-to-air interference, including the operational impacts observed and the practical measures pilots employ to maintain acceptable voice communication quality.

International Civil Aviation Organization

WORKING PAPER

FREQUENCY SPECTRUM MANAGEMENT PANEL (FSMP)

Twenty-Second Working Group Meeting

Dakar, Senegal, 04 - 13 March 2026

Agenda Item 5: Aeronautical Band Planning – FSMP.005.03

VHF DSB-AM Co-channel Limitations

(Presented by Khaled Eltanany, IATA)

SUMMARY

In response to the request for contributions to FSMP WG/22, seeking input from operators for any additional details that may further inform the technical material for VHF voice planning.

This paper shares operators' feedback on their experiences with co-channel VHF air-to-air interference and the practical actions pilots take to ensure acceptable voice quality.

1. INTRODUCTION

FSMP WG/21, ACTION ITEM 21-03 was created asking for additional details about the VHF Air-to-Air interference considerations, to minimize the voice degradation and maintain the acceptable voice quality. This contribution presents additional details to consider the operational requirements for VHF voice quality from the pilot perspective.

2. DISCUSSION

VHF frequencies are a limited resource in aviation, and ICAO provisions aim to prevent harmful interference—meaning interference that could endanger safety or seriously disrupt communications. Audio quality degradation can significantly impact operational effectiveness and the safety of aeronautical communications.

Current planning methods assume a simple “radio horizon” model, which doesn’t fully account for terrain or signal losses. With more aircraft and new systems competing for VHF frequencies, to address the limitations

in current co-channel planning methods, further work could incorporate operational insights from pilots who experience them firsthand.

The issue is that it is possible — as near the upper edge of a Designated Operational Coverage (DOC) — that a pilot may occasionally hear VHF transmissions from another aircraft operating in a different DOC but using the same frequency. This may be in the form of hearing a faint transmission from another aircraft that is not in his sector. ATC instructions would still be clearly understood, but there's occasional background chatter.

In order to support the future work, IATA reached out to the flight operations group, asking pilots to share their expertise and responses regarding the following:

- Do you consider it acceptable to occasionally hear transmissions from another aircraft in the above-mentioned circumstances, provided communication with ATC remains intelligible?
- At what point does this become unacceptable or distracting? When would you consider it necessary to report it as interference?
- Have you taken any actions to manage or reduce this interference (e.g., adjusting squelch settings)? If so, what has worked best in your experience?

Response A

Question 1: Do you consider it acceptable to occasionally hear transmissions from another aircraft in the above-mentioned circumstances, provided communication with ATC remains intelligible?

Answer: When communicating with ATC, we want interference to be as minimised as possible. Clear, concise communication with both ATC and the airline is critical for maintaining a safe operation. While it was not asked, we do not want interference with ACARS DATALINK - especially to FANS/ CPDLC.

Question 2: At what point does this become unacceptable or distracting? When would you consider it necessary to report it as interference?

Answer: It is unacceptable when the communication with ATC is not clear or when CPDLC messaging is impacted.

Question 3: Have you taken any actions to manage or reduce this interference (e.g., adjusting squelch settings)? If so, what has worked best in your experience?

Answer: The current environment is managed well for worldwide Ops. When we experience VHF voice interference, we report it to the appropriate authority, e.g., the FCC, the ATC authority, or ARINC Radio. For data-link issues, we work with the DSPs and ANSPs to resolve them. As VHF SATCOM is introduced, we want the same standards and performance to be maintained.

Response B

Question 1: Do you consider it acceptable to occasionally hear transmissions from another aircraft in the above-mentioned circumstances, provided communication with ATC remains intelligible?

Answer: It is acceptable to occasionally hear faint or overlapping transmissions from other sectors, intermittent background noise, or momentary clipping, provided that communication with ATC remains intelligible and pilots and controllers maintain a two-way communication.

Question 2: At what point does this become unacceptable or distracting? When would you consider it necessary to report it as interference?

Answer: It becomes unacceptable when ATC communications are not fully intelligible, there is a frequency blocking, there is a loss of authenticity that can affect situational awareness, there's persistent interference, a stuck microphone, or a continuous weak transmission. These situations can significantly impact safety and should be reported.

Question 3: Have you taken any actions to manage or reduce this interference (e.g., adjusting squelch settings)? If so, what has worked best in your experience?

Answer: As a rule of thumb, if we can momentarily hear other sectors but ATC remains clearly intelligible, it should be considered acceptable, while a reduction in the intelligibility or a continuous interference should be considered as a safety concern. Monitoring of alternate frequency and the use of CPDLC cross-check when available is considered as a mitigation action.

Response C

Question 1: Do you consider it acceptable to occasionally hear transmissions from another aircraft in the above-mentioned circumstances, provided communication with ATC remains intelligible?

Answer: Occasional background transmissions near the edge of a DOC are generally acceptable as long as ATC remains fully readable. However, in a TMA or below FL100, this is usually not acceptable due to the higher workload and frequency congestion. This can vary from pilot to pilot, but in terminal environments, most crews expect a clean frequency.

Question 2: At what point does this become unacceptable or distracting? When would you consider it necessary to report it as interference?

Answer: It becomes unacceptable when ATC readability drops (below R5/R4), transmissions overlap or block ATC calls, “say again” becomes frequent, or the extra chatter creates uncertainty about who the message is for. If it is persistent under these conditions, would report it as interference.

Question 3: Have you taken any actions to manage or reduce this interference (e.g., adjusting squelch settings)? If so, what has worked best in your experience?

Answer: The main actions are adjusting squelch (not possible in all commercial aircraft types) to filter weaker signals and using the other VHF radio if it has slightly different sensitivity. In addition, switching to the secondary frequency in the sector also helps; therefore, it's always good to know the backup frequency.

Operational Considerations:

In line operations, managing VHF interference is a practical, cockpit-level task rather than a measurement-driven process. Voice intelligibility is judged subjectively—pilots decide if a call is readable based on how well it can be understood (i.e., “readability 4 or 5”) without any numeric indicator. When available for the aircraft type, squelch is adjusted manually—either by rotating a physical control or by selecting a soft key—

until background static is reduced and only the stronger, operationally usable signals are heard. There is no cockpit display of dB, SINAD, or similar engineering metrics.

If interference persists, pilots typically try the other VHF set, which may have slightly different receiver sensitivity, and—where operationally appropriate—shift to the published secondary/backup frequency for the sector of operations. Knowing the backup frequency in advance expedites this transition and often restores workable comms more quickly.

3. ACTION BY THE MEETING

The meeting is invited to:

a) note and review the contents of this working paper;

— END —