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EXECUTIVE COMMITTEE

Agenda Item 22: Other high-level policy issues to be considered by the Executive Committee

A42-WP/44 IS THE PRODUCT OF PREJUDICE AND PROVOCATION ON THE DEMOCRATIC PEOPLE’S REPUBLIC OF KOREA

(Presented by the Democratic People’s Republic of Korea)

EXECUTIVE SUMMARY

The Democratic People’s Republic of Korea (DPRK) is committed to fulfil its obligations as a Contracting State of ICAO.

This information paper discloses the strategic truth of Global Navigation Satellite System (GNSS) Radio Frequency Interference (RFI) originating allegedly from DPRK which was asserted by the Republic of Korea (ROK) since 2011 and clarifies its unreasonableness and countermeasures of this issue.

<i>Strategic Goals:</i>	This information paper relates to Strategic Goal: <i>Every Flight is Safe and Secure.</i>
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<i>Financial implications:</i>	This information paper has no direct financial implications.
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<i>References:</i>	Doc 7300, <i>Convention on International Civil Aviation</i> Annex 10 – <i>Aeronautical Telecommunications</i> Doc 10184, <i>Assembly Resolutions in Force (as of 7 October 2022)</i> Doc 9849, <i>Global Navigation Satellite System (GNSS) Manual</i>
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1. BACKGROUND

1.1 In 2011, ROK made the President of ICAO Council to send the Director General of General Administration of Civil Aviation (at that time), DPRK a letter which required an appropriate action while alleging that the incidents of GNSS RFI occurred in ROK during the period of 4 March to 13 March 2011, were originated from DPRK.

1.2 Since then, ROK has submitted the documents to ICAO Council in which criticised the DPRK while forcibly linking DPRK to the GNSS RFI incidents occurred for several times in ROK during the period of 28 April to 13 May 2012, 31 March to 5 April 2016, 6 March 2024 to 2 June 2024, October 2024 to February 2025 etc. to be followed by the adoption of unfair Council Decisions (Ref: C-DEC 196/4, C-DEC 208/9, C-DEC 234/13, C-DEC 235/16).

1.3 In response to that, the National Aviation Administration of DPRK confirmed with relevant entities whether it is true or not and replied to ICAO that the issue of GNSS RFI is one of anti-DPRK strategic manoeuvrings of ROK to disgrace the image of the DPRK in high-dignity, so it is nothing but a product of political plot and a pure fabrication which is lacking in objective and scientific evidences.

1.4 In September 2024, during the period of 2nd Asia Pacific Ministerial Conference which was held in India, through the meeting with the President of ICAO. The Director General of National Aviation Administration, DPRK clarified our position again that the incident of GNSS RFI occurred in ROK is completely irrelevant to DPRK and it is one of the manoeuvrings which was politically provoked by ROK.

1.5 In relation to this issue to be discussed again in upcoming 42nd Session of the ICAO Assembly, the National Aviation Administration, DPRK has analysed all the information alleged by ROK since 2011 in cooperation with relevant entities to investigate the actual state of GNSS RFI incidents for revealing the truth.

2. INEVITABILITY OF GNSS RFI INCIDENTS OCCURRED IN ROK

2.1 All the GNSS RFI incidents occurred in ROK in the past years are the inevitable results originated from the various kinds of military exercises conducted at any time by the United States (US) and ROK by disordered conditions on radio frequency management in ROK, not accidental cases.

2.2 Since long ago, ROK and US are using all the radars, radar jammers, radio communication devices in band ranges of L, C, X to commit spying on DPRK while arranging such devices near the border between DPRK and ROK to affect negatively to GPS receiver systems by operating such devices disorderly.

2.3 Such frequencies originated from ROK would affect negatively to the GPS receiver frequencies in case of technical weakness and operational error of electronic devices occurred.

For example: In 2011 and 2012, the accident of unreliable signals of GPS receivers was lasted for 3 months due to GPS L1 frequency interference signals transmitting from GOJINRI beacon in Kosong county of Kangwon Province in ROK. It was proved that the cause of interference was originated from ROK Air Force radar base located in northern part of such beacon.

2.4 ROK and US are transmitting strong radio interference signals to the territory and airspace of DPRK even affecting TV or radio frequencies with arranging various types of military aircraft and jammers such as strategic bomber “B-1” equipped with a jammer “AN/ALQ-161A”, C-130 with a jammer “AN/ALQ-172(V)”, EA-18G with AN/ALG99F, electronic jamming aircraft “EC-130H”, “EA-6B”etc. which are able to interfere on the land, marine and air with the signal band range of 2MHz-18GHz, across

the whole area of border from the islands such Paekryong, Yonpyong located in Korean west sea area to mountainous areas of eastern part in ROK, while conducting disorderly the electronic war exercise. Especially, during the joint military exercise period (Since 1995, ROK has conducted RFI on the analogue TV channel of DPRK and anti-DPRK strategic broadcasting, so in response to that, the relevant entity of DPRK has notified to ITU on ROK's violation during the period of September 2011 to September 2021 for 14 times. ITU had decided to reflect such violation of ROK to the report of World Radio Communications Conference 2023 through the 86th, 87th, 88th meetings of Radio Regulations Council.)

2.5 In Incheon FIR, ROK and US are carrying out the aerial reconnaissance and frequency interference manoeuvrings against DPRK while operating military flights on international civil flight routes which are crossing the airspace of West sea of ROK that is nearby DPRK for 24 hours in every day by Fighters and reconnaissance aircraft such as U-2S, RQ-4B, RC-12, RC-135, MQ-9, RC-800, F-35D, F-16C etc. while jeopardizing the safety of civil aviation.

2.6 By the strong signals transmitting by Fighters and reconnaissance aircraft, not only GPS receivers and other general communication devices are being interfered. For example: In October 2024, according to the measurement on the locations such as Kaesong, Kangryong, Paechon, Pyonggang, Kumgang area, the power level of RFI signal range was from approximately -75dBm to -40dBm in the band of UHF, L, S, C, X from ROK area.

2.7 In ROK, several hundreds of radars are operating, especially, in Kyonggi Province and Seoul area, over 30 high output radars are operated and these are transmitting its signals disorderly and various types of radars and jammers installed on flying fighters and moving battleships are also affecting significantly to GPS receivers. These radars are operating in the band of L, S, C, X with wide transmitting bandwidth, variable frequencies and over 100-250Kw of transmitting output and several hundreds of kilometres with transmitting range to affect GPS receivers directly or indirectly.

2.8 During the period of 2024-2025, the relevant entity of DPRK has measured the electromagnetic wave spectrum signals in the frequencies of GNSS and confirmed that very strong RFI was originated from ROK region. (Refer to Figure 1 and 2)

2.8.1 The radio strength was observed as over -70dBm in average, to -20dBm to the maximum by the measurement on main locations with frequency band signal 1MHz-3GHz.

2.8.2 L band radio signals were strong in the GPS satellite band of 1200MHz-1650MHz and except those, multi flexion frequencies and cross modulation signals are constantly existing and it was confirmed that all such signals were originated from ROK region by the directional detection.

2.9 In 2025, the relevant entity of DPRK has conducted the surveillance audit on the frequency band operation in whole countrywide for several times and has strictly measured the GPS frequency 1225-1230MHz, 1570-1580MHz with setting standard input to -132dBm by spectrum analyser on seven locations including Kaesong in DPRK areas alleged by ROK in the said document, however any obsolete waves were not detected. But jamming signals from ROK were detected for hours.

3. THE ANALYSES ON PERIODS OF GNSS RFI INCIDENTS ALLEGED BY ROK

3.1 ROK and US are conducting electronic war exercises at any time and places but during the periods of joint military exercises, the electronic war exercises are being conducted simultaneously by operating several hundreds of radars every day so during those periods, the radio space is literally very confused and disordered to affect significantly to radio operation by even a contingent error or any malfunction of the equipment. (Generally, if the radar with strong transmitting output is to be operated, it

affects significantly to other communication devices including GPS receivers around it even though they are operating with other frequencies.)

3.2 The GNSS RFI incidents periods alleged by ROK that those were originated from DPRK are almost the periods during or before and after the ROK and US joint military exercises were conducted. (Refer to below detailed information)

- **4-14 March 2011**(US-ROK Joint Military Exercise “Key Resolve Eagle 11”)
 - On 7 March 2011, the electronic warfare exercises conducted in West and South sea of ROK, air defence and anti- cruising missile defence drills conducted.
 - On 9 March 2011, the electronic warfare exercises conducted in South sea of ROK at night time.
 - On 16 March 2011, the electronic warfare exercises conducted by battleship “Pirobong” and “Ryosu” during the time 1000 am-1100 am
- **28 April-13 May 2012** (US-ROK Joint Military Exercise “Key Resolve, Eagle 12”)
 - From 30 April to 2 May 2012, joint tactical exercise conducted, artillery position detection radar operated.
 - On 4 May 2012, Air defence and electronic interference exercise conducted in Pohang City, North Kyongsang province, by using radar and air defence weapons
 - On 10 May 2012, electronic warfare exercises conducted by fighters of No.8 Flight Unit, Air Force, ROK
- **31 March-5 April 2016**(US-ROK Joint Military Exercise “Key Resolve- Eagle 16”)
 - On 4 April 2016, naval firing exercise conducted by various types of artillery and UA detection radar at seaside of Kosong county in Kangwon province, ROK.
 - On 5 April 2016, naval firing exercise conducted by target tracking radar on Paekryong Island
 - On 4 April 2016, electronic warfare exercise conducted by 2 military carriers “CN-235M”
 - On 5 April 2016, electronic warfare exercise conducted by 2 fighters
- **29 May to 2 June 2024** (Military Exercise)
 - From 27 May to 30 May, joint air defence exercise conducted by mobilising over 90 fighters and UA over the firing range located in Jik-do in the west of ROK, various types of radar and radio communication devices were mobilised for this exercises.
 - On 30 May, the electronic warfare exercises conducted in parallel with ground operations attack exercises in the Sangdong firing range.
- **2 October 2024-14 February 2025** (Joint Military Exercises “Hoguk-24”)
 - During 22-25 October 2024, marine manoeuvring exercise and air defence exercise conducted by mobilizing 24 battleships, 10 aircraft, US navy No.7 Fleet, US air force fighters, and Marine patrol planes in the East area of East Sea near the Donghae city in Kangwon Province, ROK.
 - During 21-25 October 2024, joint air defence and anti-missile exercises were conducted.

- On 26 November 2024, the exercises conducted by using anti-unmanned aircraft gun in the Hanul Atomic headquarter in Uljin county of North Kyongsang Province, ROK (anti-UA guns were arranged at tens of posts)
- In June 2023, RFI equipment was introduced in 5 atomic power plants such as Hanul, Saeol, Wolsong, Hanbich etc. for neutralising unmanned aircraft within about 500m distance.
- During 2-3 October 2024, ROK-US joint marine exercises was conducted by mobilizing military battleships such as US marine battleship “Boxer”, ROK marine military landing ship “Marado”, Missile destroyer “Chungmugong Risunsin”, Destroyer “Yangmanchun” in parallel with electronic interference training by mobilizing various types of electronic devices and surveillance equipment.
- During 22-25 October 2024, air defence and anti- cruising missile exercises conducted by making interference with electronic warfare devices in the East Sea area in ROK.
- During 13-15 November 2024, electronic warfare and air defence exercises conducted within the frame of second multi-domain joint exercise “Freedom Edge” by mobilizing 4 military vessels such as aircraft carrier “George Washington”, various types of fighters, Japanese Aegis-class Missile Destroyer “Haguro”.
- During 21 October -1 November 2024, ROK-US joint air defence exercise “Freedom Flag” conducted through the whole area in ROK and over surrounding water, various types of military exercise conducted including electronic warfare by mobilising about 110 aircrafts.
- On 21, 23, 25 October 2024, joint air defence and anti-ballistic missile exercises conducted within the system of Joint Military Exercise “Hoguk 24”.
- During 14-17 November 2024, ROK-US joint air defence exercise “Ssangmae” was conducted by mobilising 12 aircrafts over the west sea of ROK.
- During 25-29 November 2024, comprehensive military exercise “Soaring Eagle” was conducted over the west sea of ROK, including with anti- radio interference training.
- During 9-13 December 2024, ROK-US joint air defence exercises “Ssangmae” was conducted.
- On 19 December 2024, joint air defence exercise conducted in response to enemy’s UA infiltration through the whole area in ROK and over East and West sea of ROK.
- On 4 October 2024, electronic warfare exercises were conducted by ROK air force.
- On 11 October 2024, electronic warfare exercise conducted over Wonju, Pyongchang, Danyang area.
- On 16 October 2024, electronic warfare exercise conducted over Sangdong area.
- On 25 October 2024, electronic warfare exercise conducted by ROK air force.
- On 30 October 2024, electronic warfare exercise conducted by ROK air force over Chunchon area.
- On 13 November 2024, electronic warfare exercise conducted by mobilizing fighters of ROK air force.
- On 25 November 2024, electronic warfare exercise conducted by mobilizing carrier “C-130”.
- On 28 November 2024, electronic warfare exercise conducted around the Sangdong firing range.

- On 10 December 2024, electronic warfare exercise conducted by mobilising carrier “CN-235M”.
- On 11 December 2024, electronic warfare exercise conducted in the air over middle area of ROK.
- On 17 December 2024, electronic warfare exercise conducted by mobilising carrier “CN-235M” over an island “Paek A”.
- On 26 December 2024, electronic warfare exercise conducted over islands “Anma” and “Imja”.
- On 27 December 2024, electronic warfare exercise conducted by the fighters of ROK air force.
- On 6 January 2025, electronic warfare exercise conducted over Kunsan, Daechon, Kongju and Ryongdong area.
- On 14 January 2025, electronic warfare exercise conducted by ROK air force over Chunchon, Hwaungbyongsan area.
- During 21-24 January 2025, ROK-US joint military air defence exercise “Ssangmae” conducted in the Kangwon province of ROK.
- On 25 January 2025, electronic warfare exercise conducted by ROK air force over island Jik.
- On 31 January 2025, electronic warfare exercise conducted by ROK air force in Yimsil, Kochang areas.
- On 3 February 2025, electronic warfare exercise conducted by ROK air force over Ungchon and island Jik area.
- On 5 February 2025, electronic warfare exercise conducted by ROK air force.
- On 6 February 2025, electronic warfare exercise conducted by ROK air force.
- On 13 February 2025, electronic warfare exercise conducted by ROK air force in parallel with air battle exercise.
- **18-28 August 2025 (US-ROK Joint Military Exercises “Ulji Freedom Shield”)**
- During 25-27 August 2025, joint river crossing exercise conducted at the Han riverside of Ryoju city of Kyonggi Province, ROK
- On 26 August 2025, joint anti-Unmanned Aircraft exercise conducted at the Pyongtaek city of Kyonggi Province, ROK and the jamming signals 1225-1230MHz were detected. (Refer to Figure 1)
- Jamming signal measured at 0900 on 28 August 2025 (Refer to Figure 1)
- 19-22 August 2025, joint day and night flight exercises conducted, on 19 August, electronic warfare exercise conducted over the Kyeryong City, North Chungchong province, ROK
- On 27 August 2025, Joint anti-Unmanned Aircraft exercise conducted at the Chongju airport.

4. THE NEWS REPORT OF ROK THAT THE GNSS RFI INCIDENTS WERE ORIGINATED BY ROK'S MILITARY EXERCISE DURING THE PERIODS OF ALLEGED BY ROK

4.1 During the morning period of 4-5 March 2011, in ROK, some mobile communication stations located in the metropolitan area of Seoul and Incheon etc. were interfered, so such GPS jamming surely affected to the use of cell phones like malfunctioning the clock in the screen of cell phone and other activities of mobile services.

4.2 The example of press news of ROK: "In the morning of 5 March 2011, some users of cell phone complained as 'the clock in the screen is displaying incorrect time' through SNS or Internet, the public opinion that the reason is referred to Joint Military Exercises was spread."

4.3 Some mobile communication corporations such as SK telecom and KT said "Jamming to normal mobile communication signal is being occurred since the commencement of Joint Military Exercise 'Key Resolve' on 4 March 2011. The customers are complaining about the malfunction of mobile phone service."

4.4 The news from YTN, ROK on 2 April 2016, "Passenger aircraft to Malaysia was returned to Incheon International Airport due to GPS error. The flight of AirAsia ZE39 was returned to Incheon International Airport within 10 minutes after take-off due to GPS receiver error. Regarding this, the airline explained to passengers that the reason was originated by GPS attack of North Korea. But later, the Air Navigation Equipment Section of the Ministry of Land, Transport ROK clarified that the replacement of relevant equipment is required because of the error of GPS receiver and navigational equipment, so the reason of returning of said aircrafts to airport is referred to malfunction of the aircraft itself, not GPS RFI originated from North Korea."

4.5 Except those, the fact that various kinds of GPS RFI incidents occurred in the past years even during the period the GPS RFI were not originated from DPRK alleged by ROK shows that such incidents were occurred by internal disorder and confusion of GPS frequencies control system in ROK, not by the RFI from the DPRK.

For example:

According to ROK's news, it was said that "In April 2014, an unmanned aircraft with fixed wings which led by the 8th Corps of ROK army was crashed due to unknown GPS RFI while returning after completing its reconnaissance mission."

According to another ROK's news, it was said that "In May 2012, for the intention of purchasing the Austrian made aircraft S-100 by ROK's air force, the training was conducted in Songdo, Incheon but during its training, it was crashed due to GPS RFI to be followed by one person dead, 2 persons seriously injured." (This news reveals that the GPS RFIs alleged by ROK are being occurred very seriously around the military firing range and the originated area of GPS interference is the surroundings of military firing range even where is separate at some distances from the civil aviation route.)

5. THE ANALYSED DATA ON THE CAUSE OF FREQUENT OCCURRENCE OF WORLD WIDE RFI ON SATELLITE NAVIGATIONAL RECEIVER, ESPECIALLY GPS RECEIVERS

5.1 The GPS receivers are being easily interfered by various kinds of jammed signal, obsolete signal, and multi flexion signals due to the weakness of satellite navigation system itself, especially occurring in the areas of active radio operation.

5.2 In ROK and US, the numbers of residents who could easily purchase and use GPS RFI devices illegally are ever increasing so the incidents of malfunctioned GPS receivers are continuously occurring.

For example:

- In June 2015, the passenger aircraft which was going to take off in Philadelphia airport in US lost its GPS signal, so after the investigation, it was confirmed that it was originated from the GPS interference device purchased in the market by a truck driver nearby the airport.

- According to the information of ROK electronic communication research institution published on 13 May 2016, it was said that in ROK everybody could easily purchase the GPS interference device, even on the Internet.

5.3 In ROK and US, the RFI devices could be purchased and used disorderly, so it negatively affects the safe operation of even civil aircraft. (Please refer to Figure 3,4)

5.4 Due to error, fault and malfunction of GPS satellite itself, various kinds of signals such as jammed signal, obsolete signal and multi flexion signals occur to negatively affect GPS receivers.

6. DATA FOR NEGATIVELY AFFECTING SAFE OPERATION OF CIVIL AIRCRAFTS BY US AND ROK

6.1 US and ROK are bringing danger to normal operation of civil aircraft while conducting the flights of military fighters and reconnaissance plane on the international civil aviation routes which are crossing the airspace near the southern border of DPRK.

6.2 The military fighters such as U-2S, RQ-4B, RC-12, RC-135, MQ-9 of US and RC-800, F-35D, F16C and Global Hawk of ROK are busy in committing spy flights on DPRK on the international flight routes and adjacent routes of Inchon FIR day and night almost every day.

6.3 The military aircrafts of US and ROK are conducting flights on the flight level 500m-20,000m at the speed of over 530Km/h including the unmanned aircrafts with full arms on the international civil aviation route so they are directly jeopardizing civil aircrafts.

6.4 US and ROK are making interference on the radio equipment installed on civil aircraft by disorderly operating all types of radio interference devices on the international flight route and its adjacent area across the south border of DPRK, especially west sea nearby Inchon airport.

6.5 In particular, GPS receivers and general communications devices are being interfered by the strong radio signals transmitted from US and ROK military aircrafts, so the results measured in Kaesong and Yonan area in DPRK showed that the radio strength was the range from -75dBm to -40dBm in the band of UHF, L, S, C, X.

6.6 Various types of radars and radio transmitting devices are operated every day in Incheon airport and around its land and sea in ROK to transmit strong frequencies. For example: The frequency of radar "FPS-117" of ROK air force located in a small island of Paekryong island is the level of 1.215~1.4GHz and transmitting output is 400Kw and except this, over 6 radars including with artillery detection radars were arranged and operating constantly on that island. As a result, the incidents of unreliability of GPS receivers installed on civil aircrafts occur frequently by those radars.

6.7 Especially, during the periods of military exercises conducted in ROK against DPRK, the occurrences of RFI happen more often because various types of military equipment and jammers are transmitting frequencies in several bands disorderly and at random while they are busy at war practice, so due to such reason, RFI incidents on civil aviation happen more often in Inchon FIR.

6.8 Furthermore, US and the ROK are busily conducting war exercises utilizing various jammers equipped by US and the ROK. This is the root cause of GNSS RFI against civil aircraft.

6.9 If it makes an analysis of the periods when shouted by the crowd in ROK that RFI incidents on GPS receivers of civil aircraft are happening, the most periods are the periods when aggressive war exercise are being conducted against DPRK.

6.9.1 As on August 2010 was the period of joint military exercise “Ulji Freedom Guardian” and March 2011, April 2012 and April 2016 were the periods of joint military exercises “Eagle”, those were the periods when the RFI incidents were occurred at maximum level.

6.9.2 As a result, during those periods, unmanned aircrafts of ROK army was crashed continuously in the surroundings of war exercise area in ROK due to RFI on GPS receivers occurred from various types of military equipment and also civil aircraft were interfered.

7. REMEDY ACTION REQUIRED

7.1 In order to ensure the operational safety of GPS receivers installed on civil aircraft on the international routes, the US and ROK joint military exercises which are conducting against DPRK shall be terminated immediately in the area and the disordered jamming shall be blocked in ROK.

7.2 ROK and US shall investigate in detail the risk caused by military fighters of US and ROK on the international civil aviation routes in Inchon FIR and take an appropriate action to stop such flights.

7.3 ROK shall clarify the root cause of abnormal RFI occurred in ROK by extirpating the bad habit of picking on others whenever the GPS incidents occurred and control strictly the management and sales of GPS jammers.

7.4 Considering the above information, the ICAO Assembly shall review the activities of the Council who excessively adopts resolutions and decisions of designated condemning one Contracting State by distributing unproved incident which are generated from political prejudice and plot and lacking in scientific verification and evident conclusion.

8. CONCLUSIONS

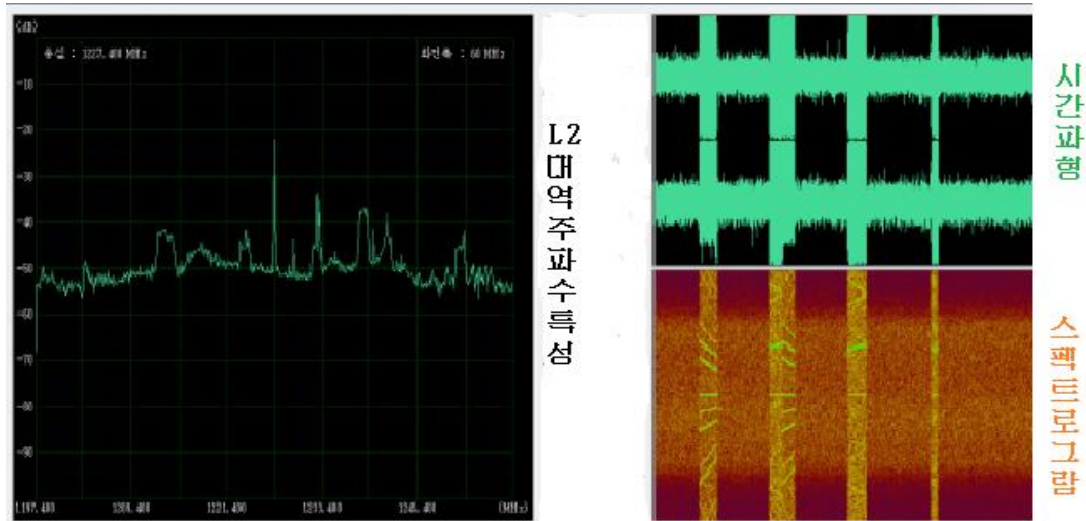
8.1 The Contracting States of ICAO shall recognise that the GNSS RFIs incidents occurred in ROK were fabricated by ROK thoroughly to disgrace the image of DPRK in high dignity, so it is nothing but a product of political plot which is lack of objective and scientific evidences.

8.2 The Contracting States of ICAO shall acknowledge correctly that the RFI incidents occurred at any time in ROK were originated from the frenzied aggressive war exercises against DPRK conducted by US and ROK and such incidents are inevitable results produced by confusion, disorder, disability and shortcomings of civil-military coordination in managing comprehensive radio frequencies in ROK.

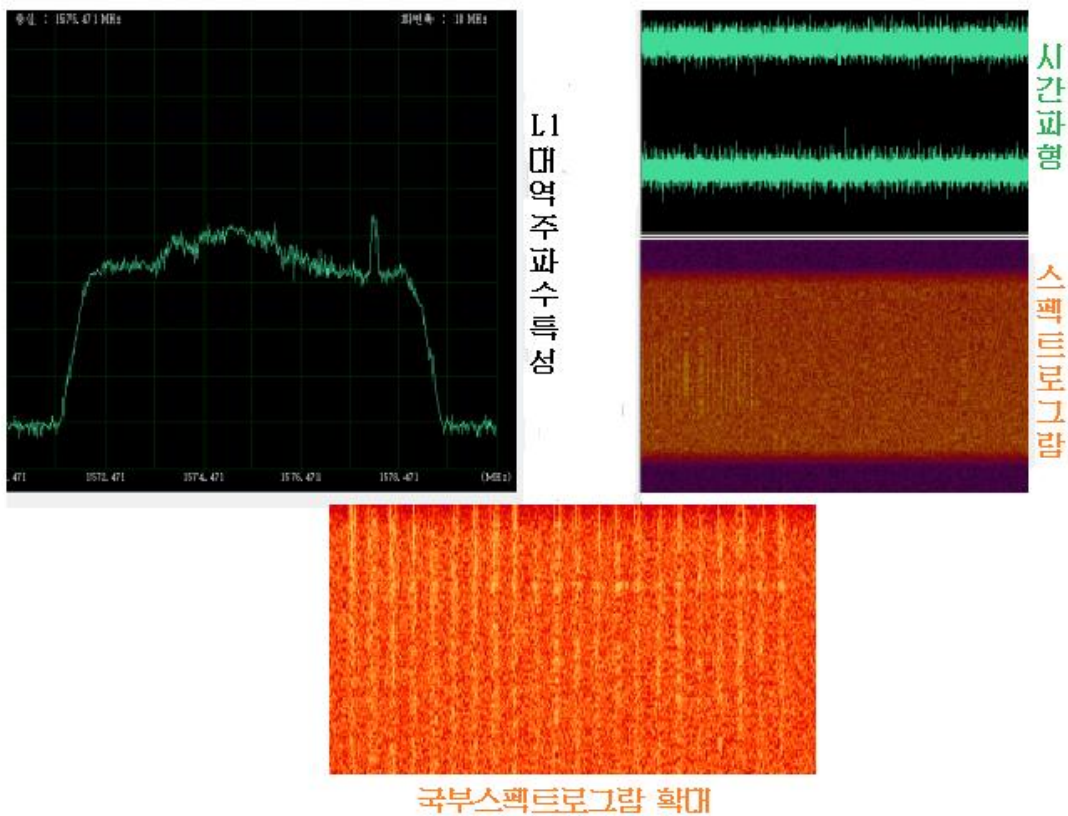
8.3 Taking this opportunity, the ICAO Council for itself shall judge the real principal offender who is posing the significant risk to the safety of international civil aviation.

8.4 The ICAO Council shall be responsible for unjust decisions relating to GNSS RFI incidents adopted inclining toward others unilaterally against DPRK, a Contracting State of ICAO and take a practical measure for the prevention of recurrence.

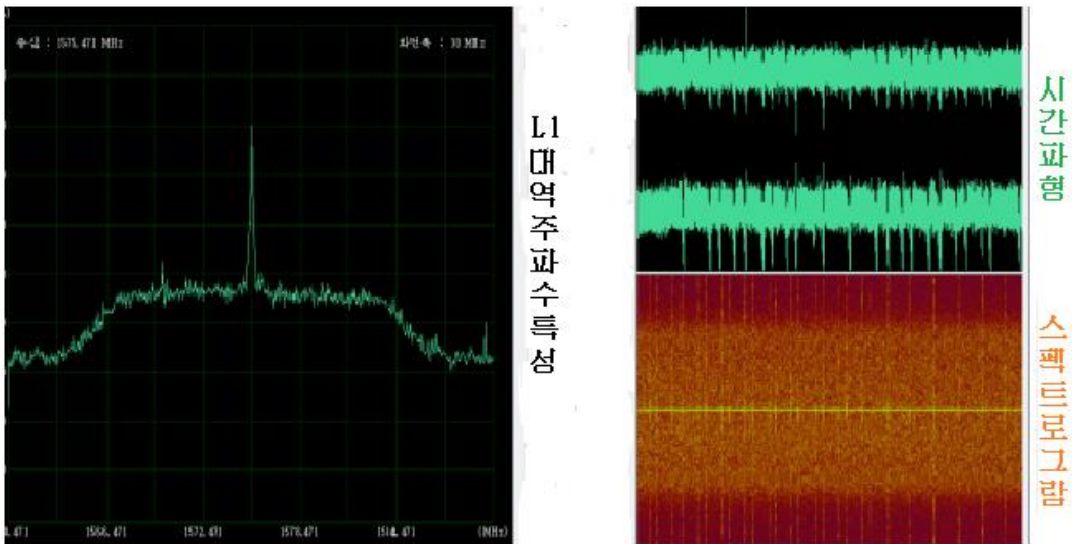
Figure 1



Jamming signal measured at 2300 on 26 August 2025



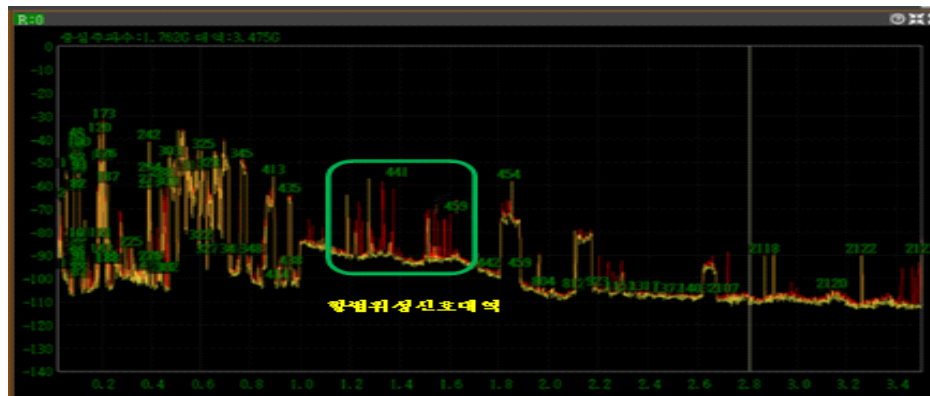
Jamming signal measured at 0900 on 28 August 2025



Jamming signal measured at 0900 on 28 August 2025

※ GPS jamming signals were measured at the whole area crossing the south border of DPRK and it was confirmed that one of the places of origin is an airport(R225) located in Ryonchon county of Kangwon province, ROK.

Figure 2



**Electromagnetic spectrum originated from ROK region
(Measured at Kaesong, DPRK at 17:11 on 25 September 2024)**

Figure 3

● GPS 신호 교란장치 제작 회로도 확보 용이, 인터넷에서도 GPS 신호교란 장치 구매 가능



Various types of GPS Jammers easily purchasable through internet in ROK

Figure 4



Unmanned Aircraft jammer(made in ROK)

장비 개발 사양서	제안서	수용 여부
크기 : TBD	250 X 680 X 200 mm 이하	수용
중량 : 20Kg	중량 : 18Kg 이하	수용
정격전압 : 28V	정격전압 : 28V	수용
전압 범위 : 18 ~32V DC	전압 범위 : 18 ~32V DC	수용
방해전파 주파수 433 MHz & 915 MHz GNSS L1 & L2 2.4 GHz & 5.8 GHz ISM	방해전파 주파수 433 MHz & 915 MHz GNSS L1 & L2 2.4 GHz & 5.8 GHz ISM	수용

Band	Frequency Range		HPA		이격거리 거리	FSPL 손실	개조
	Start Freq. (MHz)	End Freq. (MHz)	출력 (W)	출력 (dBm)			ANT 이득
					(KM)	(dB)	(dBi)
1	420	470	100	50.00	15.00	108.93	8.0
2	860	928	100	50.00	15.00	114.99	11.0
3	1200	1300	200	53.01	15.00	117.90	12.0
4	1563	1610	200	53.01	15.00	119.97	12.0
5	2400	2485	200	53.01	15.00	123.72	14.0
6	5725	5875	200	53.01	15.00	131.23	16.0

General Specifications of Unmanned Aircraft jammers made in ROK