



29TH WORLD RADIOCOMMUNICATION SEMINAR

30 November – 11 December 2020

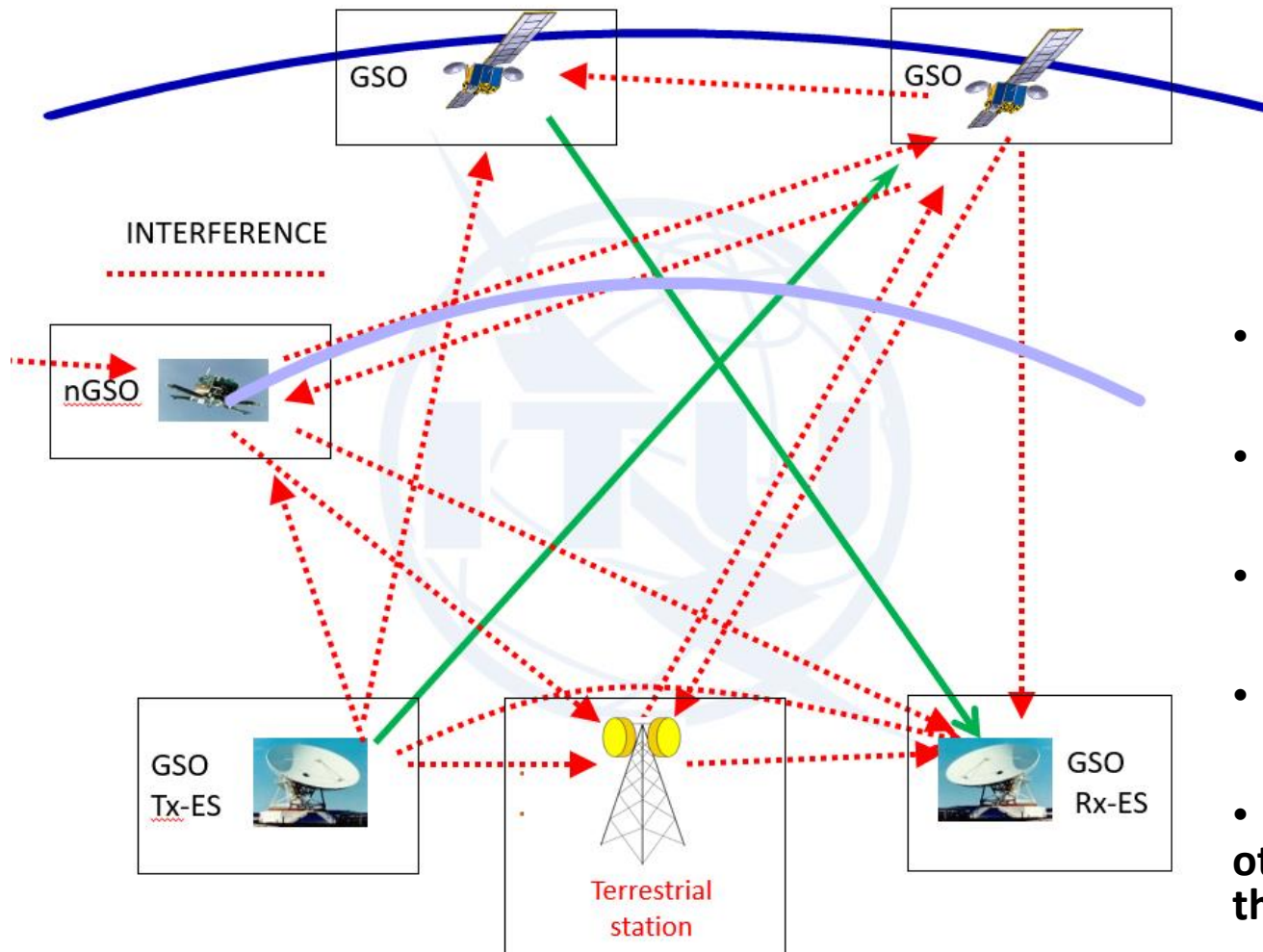
**INTRODUCTION to COORDINATION IDENTIFICATION
UNDER
NOS. 9.11A, 9.21 AND 9.11
THROUGH GIBC FREQUENCY OVERLAP PROGRAM**

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- NGSO to NGSO : 9.11A/9.12
- NGSO to GSO : 9.11A/9.12A
- GSO to NGSO : 9.11A/9.13
- NGSO/GSO to Terrestrial Services : 9.14
- 9.21: the requirement to seek the agreement of other administrations is included in a footnote to the Table of Allocation
- 9.11 : BSS (GSO/NGSO) to Terrestrial Services

Forms of Coordination

- **No.9.6:Before BiU or Notify in cases below shall effect coordination (No.9.27/AP 5 -Table 5-1)**

Cases	Provision
BSS (GSO/NGSO) to Terrestrial Services	9.11
NGSO to NGSO	9.11A/9.12
NGSO to GSO	9.11A/9.12A
GSO to NGSO	9.11A/9.13
NGSO/GSO to Terrestrial Services	9.11A/9.14
the requirement to seek the <u>agreement</u> of other administrations is included in a footnote to the Table of Allocation	9.21

ARTICLE 5

Frequency allocations

Footnote refers
Nos.9.11A – 9.14 or
9.21

- **No.9.11A (Coordination examined under No.11.32)**
- **e.g. 5.208** The use of the band 137-138 MHz by the **mobile-satellite service** is subject to coordination under No. **9.11A**.
- **No.9.21 (Agreement examined under No.11.31)**
- **e.g. 5.286** The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to **agreement** obtained under No. **9.21**

Criteria and methods for identification

Ap 5 Table 5-1: Forms of coordination, Frequency bands, thresholds/conditions:

TABLE 5-1 (*continued*) (REV.WRC-19)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.11 GSO, non-GSO/ terrestrial	A space station in the BSS in any band shared on an equal primary basis with terrestrial services and where the BSS is not subject to a Plan, in respect of terrestrial services	1 452-1 492 MHz 2 310-2 360 MHz (No. 5.393) 2 535-2 655 MHz (Nos. 5.417A and 5.418) 17.7-17.8 GHz (Region 2) 74-76 GHz	Bandwidths overlap: The detailed conditions for the application of No. 9.11 in the bands 2 630-2 655 MHz and 2 605-2 630 MHz are provided in Resolution 539 (Rev.WRC-19) for non-GSO BSS (sound) systems pursuant to Nos. 5.417A and 5.418, and in Nos. 5.417A and 5.418 for GSO BSS (sound) networks pursuant to those provisions. The detailed conditions for the application of No. 9.11 in the frequency band 1 452-1 492 MHz are provided in Resolution 761 (Rev.WRC-19) for Regions 1 and 3.	Check by using the assigned frequencies and bandwidths	
No. 9.12 Non-GSO/ non-GSO	A station in a non-GSO satellite network in the frequency bands for which a footnote refers to No. 9.11A or No. 9.12, in respect of any other non-GSO satellite network, with the exception of coordination between earth stations operating in the opposite direction of transmission	Frequency bands for which a footnote refers to No. 9.11A or No. 9.12	Bandwidths overlap	Check by using the assigned frequencies and bandwidths	

Criteria and methods for identification

Ap 5 Table 5-1: Forms of coordination, Frequency bands, thresholds/conditions:

TABLE 5-1 (continued) (Rev.WRC-19)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.12A Non-GSO/ GSO	A station in a non-GSO satellite network in the frequency bands for which a footnote refers to No. 9.11A or No. 9.12A, in respect of any GSO satellite network, with the exception of coordination between earth stations operating in the opposite direction of transmission	Frequency bands for which a footnote refers to No. 9.11A or No. 9.12A	Bandwidths overlap	Check by using the assigned frequencies and bandwidths	
No. 9.13 GSO/ non-GSO	A station in a GSO satellite network in the frequency bands for which a footnote refers to No. 9.11A or No. 9.13, in respect of any other non-GSO satellite network, with the exception of coordination between earth stations operating in the opposite direction of transmission	Frequency bands for which a footnote refers to No. 9.11A or No. 9.13	<ol style="list-style-type: none"> 1) Bandwidths overlap 2) For the band 1 668-1 668.4 MHz with respect to MSS network coordination with SRS (passive) networks, in addition to bandwidth overlap, the e.i.r.p. spectral density of mobile earth stations in a GSO network of the mobile-satellite service operating in this band exceeds -2.5 dB(W/4 kHz) or the power spectral density delivered to the mobile earth station antenna exceeds -10 dB(W/4 kHz) 	<ol style="list-style-type: none"> 1) Check by using the assigned frequencies and bandwidths 2) Check by using MSS network Appendix 4 data 	

Criteria and methods for identification

Ap 5 Table 5-1: Forms of coordination, Frequency bands, thresholds/conditions:

TABLE 5-1 (*continued*) (Rev.WRC-19)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.14 Non-GSO/ terrestrial, GSO/ terrestrial	A space station in a satellite network in the frequency bands for which a footnote refers to No. 9.11A or to No. 9.14, in respect of stations of terrestrial services where threshold(s) is (are) exceeded	1) Frequency bands for which a footnote refers to No. 9.11A; or 2) 11.7-12.2 GHz (Region 2 GSO FSS) 3) 5 030-5 091 MHz	1) See § 1 of Annex 1 to this Appendix; In the bands specified in No. 5.414A, the detailed conditions for the application of No. 9.14 are provided in No. 5.414A for MSS networks or 2) In the band 11.7-12.2 GHz (Region 2 GSO FSS): -124 dB(W/(m ² · MHz)) for 0° ≤ θ ≤ 5° -124 + 0.5 (θ - 5) dB(W/(m ² · MHz)) for 5° < θ ≤ 25° -114 dB(W/(m ² · MHz)) for θ > 25° where θ is the angle of arrival of the incident wave above the horizontal plane (degrees) 3) Bandwidth overlap	1) See § 1 of Annex 1 to this Appendix	

Criteria and methods for identification

Ap 5 Table 5-1: Forms of coordination, Frequency bands, thresholds/conditions:

TABLE 5-1 (end) (Rev.WRC-19)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.21 Terrestrial, GSO, non-GSO/ terrestrial, GSO, non-GSO	A station of a service for which the requirement to obtain the agreement of other administrations is included in a footnote to the Table of Frequency Allocations referring to No. 9.21	Band(s) indicated in the relevant footnote except 13.4-13.65 GHz in Region 1 13.4-13.65 GHz in Region 1 indicated in No. 5.499A	Incompatibility established by the use of Appendices 7, 8, technical Annexes of Appendices 30 or 30A, pfd values specified in some of the footnotes, other technical provisions of the Radio Regulations or ITU-R Recommendations, as appropriate i) Bandwidth overlap, and ii) any network in the space research service (SRS) with a space station within an orbital arc of $\pm 20^\circ$ of the nominal orbital position of a proposed network in the FSS	Methods specified in, or adapted from, Appendices 7, 8, 30, 30A, other technical provisions of the Radio Regulations or ITU-R Recommendations	

RoP TABLE 9.11A-1

TABLE 9.11A-1

Applicability of the provisions of Nos. 9.11A-9.14 to stations of space services (MOD RRB20/85)

1	2	3	4	5	6	7
Frequency band (MHz)	Footnote No. in Article 5	Space services mentioned in a footnote referring to Nos. 9.11A, 9.12, 9.12A, 9.13 or 9.14, as appropriate	Other space services or systems to which Nos. 9.12 to 9.14 provision(s) apply equally, as appropriate	Applicable Nos. 9.12 to 9.14 provision(s), as appropriate	Terrestrial services in respect of which No. 9.14 apply equally	Notes
137-137.025	5.208	MOBILE-SATELLITE (non-GSO) ↓	SPACE OPERATION METEOROLOGICAL-SATELLITE SPACE RESEARCH ↓	9.12, 9.12A, 9.13, 9.14	FIXED (5.204, 5.205) LAND MOBILE (5.204, 5.205) MARITIME MOBILE (5.204, 5.205) AERONAUTICAL MOBILE (OR) (5.204, 5.206) BROADCASTING (5.207)	1
137.175-137.825	5.208	MOBILE-SATELLITE (non-GSO) ↓	SPACE OPERATION (with the exception of short-duration mission (non-GSO) in accordance with Resolution 660 (WRC-19) (See No.5.209A)) METEOROLOGICAL-SATELLITE SPACE RESEARCH ↓	9.12, 9.12A, 9.13, 9.14	FIXED (5.204, 5.205) LAND MOBILE (5.204, 5.205) MARITIME MOBILE (5.204, 5.205) AERONAUTICAL MOBILE (OR) (5.204, 5.206) BROADCASTING (5.207)	1
137.025-137.175 137.825-138	5.208	Mobile-satellite (non-GSO) ↓	---	9.12, 9.14	Fixed (in countries other than those listed in Nos. 5.204 and 5.205) Land mobile (in countries other than those listed in Nos. 5.204 and 5.205) Maritime mobile (in countries other than those listed in Nos. 5.204 and 5.205) Aeronautical mobile (OR) (in countries other than those listed in Nos. 5.204 and 5.206)	
148-149.9	5.219	MOBILE-SATELLITE (non-GSO) ↑	--- (See No. 5.219)	9.12	--- (See No. 5.219)	
149.9-150.05	5.220	MOBILE-SATELLITE (non-GSO) ↑	---	9.12	---	1
312-315	5.255	Mobile-satellite (non-GSO) ↑	Mobile-satellite (GSO) ↑	9.12, 9.12A, 9.13	---	
312-315	5.255	Mobile-satellite (non-GSO) (5.254) ↑	Mobile-satellite (non-GSO) (5.254) ↓ Mobile-satellite (GSO) (5.254) ↓↑	9.12, 9.12A, 9.13	--- (See No. 5.254)	2
387-390	5.255	Mobile-satellite (non-GSO) ↓	Mobile-satellite (GSO) ↓	9.12, 9.12A, 9.13	---	
387-390	5.255	Mobile-satellite (non-GSO) (5.254) ↓	Mobile-satellite (non-GSO) (5.254) ↑ Mobile-satellite (GSO) (5.254) ↓↑	9.12, 9.12A, 9.13	--- (See No. 5.254)	2
399.9-400.05	5.220	MOBILE-SATELLITE (non-GSO) ↑	---	9.12	---	
400.15-401	5.264	MOBILE-SATELLITE (non-GSO) ↓	METEOROLOGICAL-SATELLITE SPACE RESEARCH ↓	9.12, 9.12A, 9.13, 9.14	FIXED (5.262) MOBILE (5.262) METEOROLOGICAL AIDS	1
454-455	5.286A	MOBILE-SATELLITE (non-GSO) (5.286D, 5.286E) ↑	---	9.12	--- (See Nos. 5.286B and 5.286C)	
455-456 459-460	5.286A	MOBILE-SATELLITE (non-GSO) (Region 2 (5.286E)) ↑	---	9.12	--- (See Nos. 5.286B and 5.286C)	

Part A1

AR9

page 7

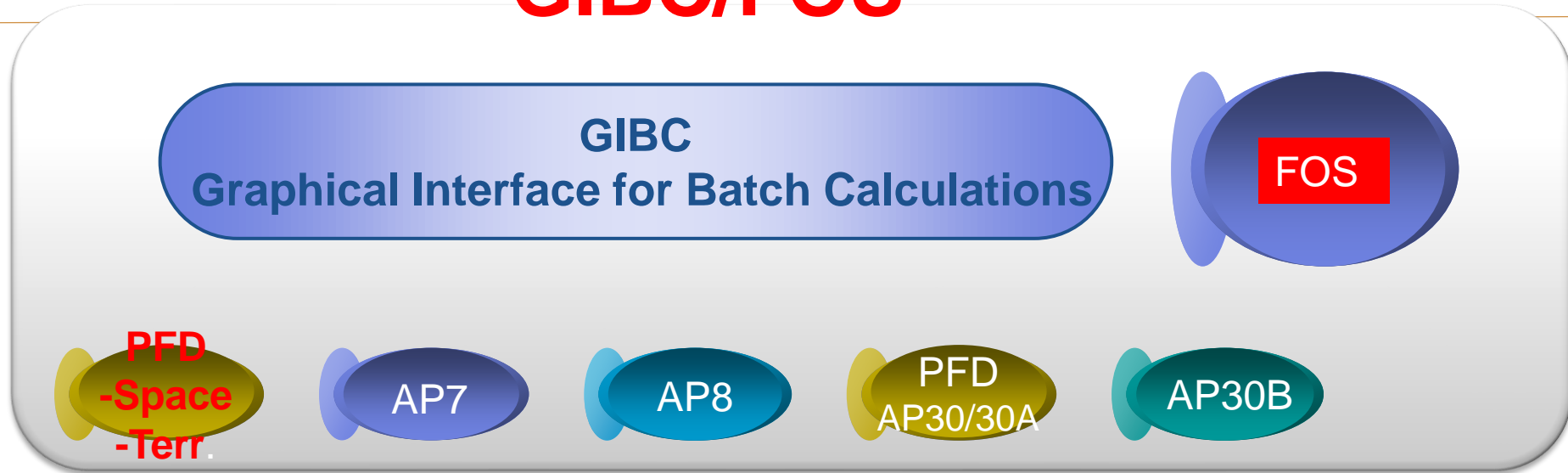
rev. 7

WRC-19 results for non-Planned space services

Modification to the procedures

- Identification of satellite networks/systems for information only and confirmation of identification for 9.12, 9.12A and 9.13

Graphical Interface for Batch Calculations GIBC/FOS



GIBC/FOS
Coming soon...

- Determination of the coordination identification under Nos.:
9.11A, 9.21 AND 9.11

ONE EXAMPLE OF GIBC/FOS RUNNING PAGE 1

FOS report for ntc_id:120520112

FREQUENCY OVERLAP (SPACE SERVICES) ANALYSIS FINISHED OK

Started at: 05.12.2020 7:00:50 PM Finished at: 05.12.2020 7:03:09 PM Exec time: 2m18s
Production: Production vrs Run by: muluk
Version: 0.0.0.8

ANALYSIS DETAILS

Ntc id: 120520112 Exi id: 0

DATABASE DETAILS

SRS Database: C:\BR_SOFT\SRS_DB\srs_all.mdb
SRS Additional: C:\BR_SOFT\SRS_DB\SPS_ALL\SPS_ALL_20201103_For_SSC.mdb
Results db: C:\Users\muluk\ITU\BR_SPACE_v9.0\TEX_RESULTS\120520112\FOS_201205190049\FOS_RESULTS.MDB

INCOMING NETWORK DETAILS

Admin: CHN Sat name: INSIGHTP-C Longitude nom:
Date of rcv: 28.06.2020 Status: 50 Notif rsn: C
Action code: A Target ntc id: Plan id:

SUMMARY FOR PROVISION 9.12 F

LIST OF POTENTIALLY AFFECTED ADMINISTRATIONS: D/GLS F F/GLS I/GLS J RUS USA

E LD1 120658772 1GHz F F/GLS RUS USA
E LD2 120658773 1GHz F/GLS J RUS USA
E LD3 120658774 1GHz D/GLS F/GLS I/GLS J USA
E LD4 120658775 1GHz F F/GLS RUS USA

SUMMARY FOR PROVISION 9.12A F

LIST OF POTENTIALLY AFFECTED ADMINISTRATIONS: ARS/ARB G J KOR MCO MLA NIG PAK S

E LD1 120658772 1GHz ARS/ARB G KOR MCO MLA PAK S
E LD2 120658773 1GHz ARS/ARB MCO MLA NIG PAK S
E LD3 120658774 1GHz J MCO MLA NIG PAK S
E LD4 120658775 1GHz ARS/ARB G KOR MCO MLA PAK S

ONE EXAMPLE OF GIBC/FOS RUNNING PAGE 2

AFFECTED NETWORKS UNDER 9.12 F

D/GLS	101500300	GALILEO-NAV-2004	999.00	CR
F	117520372	AST-NG-C-4	999.00	CR
F/GLS	099500144	MSATNAV	999.00	CR
F/GLS	100500321	MSATNAV-2	999.00	CR
F/GLS	101500014	MSATNAV-3	999.00	CR
F/GLS	103500093	MSATNAV-4	999.00	CR
F/GLS	109520327	GALILEO-2	999.00	CR
F/GLS	119500116	GALILEO-2	999.00	CR
I/GLS	103500082	GALILEO-M-NAVSTAR	999.00	CR
J	104500548	N-SAT-HEO2	999.00	CR
J	110500199	QZSS-1	999.00	CR
J	110520026	ALOS-2	999.00	CR
J	112520494	QZSS	999.00	CR
J	113500030	ALOS-2	999.00	CR
J	116500181	QZSS	999.00	CR
J	118520073	QZSS-A	999.00	CR
J	119520073	ALOS-4	999.00	CR
RUS	090504410	GLONASS	999.00	CR
RUS	097500304	GLONASS-M	999.00	CR
RUS	114520045	GLONASS-M	999.00	CR
USA	103500110	NAVSTAR GPS-IIRF	999.00	CR
USA	117520478	NISAR	999.00	CR
USA	118520036	USASAT-NGSO-4C	999.00	CR
USA	120500128	NISAR	999.00	CR

AFFECTED NETWORKS UNDER 9.12A F

ARS/ARB	117520215	ARABSAT-9L-1E	1.00	CR
ARS/ARB	117520216	ARABSAT-9F-44.5E	44.50	CR
ARS/ARB	117520217	ARABSAT-9M-67.5E	67.50	CR
ARS/ARB	117520218	ARABSAT-9AS-81.5E	81.50	CR
ARS/ARB	119520141	ARABSAT-9A-30.5E	30.50	CR

EXAMPLE OF GIBC/FOS RUNNING ONE NETWORK WRT OTHER NETWORK

Started at: 05.12.2020 7:34:49 PM Finished at: 05.12.2020 7:34:50 PM Exec time: 1s
Production: Production vrs Run by: muluk
Version: 0.0.0.8

ANALYSIS DETAILS

Ntc id: 120520112 Exi id: 120500128

DATABASE DETAILS

SRS Database: C:\BR_SOFT\SRS_DB\srs_all.mdb
SRS Additional: none
Results db: C:\Users\muluk\ITU\BR_SPACE_v9.0\TEX_RESULTS\120520112\FOS_201205193448\FOS_RESULTS.MDB

INCOMING NETWORK DETAILS

Admin:	CHN	Sat name:	INSIGHTP-C	Longitude nom:
Date of rcv:	28.06.2020	Status:	50	Notif ren: C
Action code:	A	Target ntc id:		Plan id:

SUMMARY FOR PROVISION 9.12 F

LIST OF POTENTIALLY AFFECTED ADMINISTRATIONS: USA

E LD1	120658772	1GHz
E LD2	120658773	1GHz USA
E LD3	120658774	1GHz USA
E LD4	120658775	1GHz

SUMMARY FOR PROVISION 9.12A F

THERE ARE NOT ANY POTENTIALLY AFFECTED ADMINISTRATION FOR THIS PROVISION

E LD1	120658772	1GHz
E LD2	120658773	1GHz
E LD3	120658774	1GHz
E LD4	120658775	1GHz

AFFECTED NETWORKS UNDER 9.12 F

USA	120500128 NISAR	999.00 CR
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NO ERROR MESSAGES



Thank you!



**ITU
Radiocommunication
Bureau**



Questions to

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