

**romatsa**

Designed for flight in VMC below Flight Level 105

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**LEGEND**

**AERODROME INFORMATION**

ICAO Location Indicator	LRAR	Location Name	Arad
AD Elevation [ft]	303 FT 1020M	Length of the longest runway [m]	
Communication Channel/Frequency	TWR 121.50	(MTWR Military Tower)	
OPC (Operational Control) not available for ATIS			

Civil Land - paved runway	Civil Land - unpaved runway	Helipad
Civil Land - unpublished	Military Land	Helipad - unpublished
Joint civil and military Land	Emergency aerodrome or aerodrome with no facilities	Abandoned or closed aerodrome

**NAVAID INFORMATION**

Compass Rose	VOR/DME	VOR	NDB
112.7 CND	Frequency identification	5°E	Isogonic line

**AIRSPACE INFORMATION**

Airspace Class A TMA	Military exercise and training Areas (AR, LRTRA, LRTRSA)
Airspace Class C TMA	Anti-Air Rocket firing Area
Airspace Class C ANV	Prohibited, Restricted and Danger Area
Airspace Class C CTR	Chart Sheet line

**WAYPOINTS**

Reporting point	Reporting point	VFR Routes
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**TERRAIN**

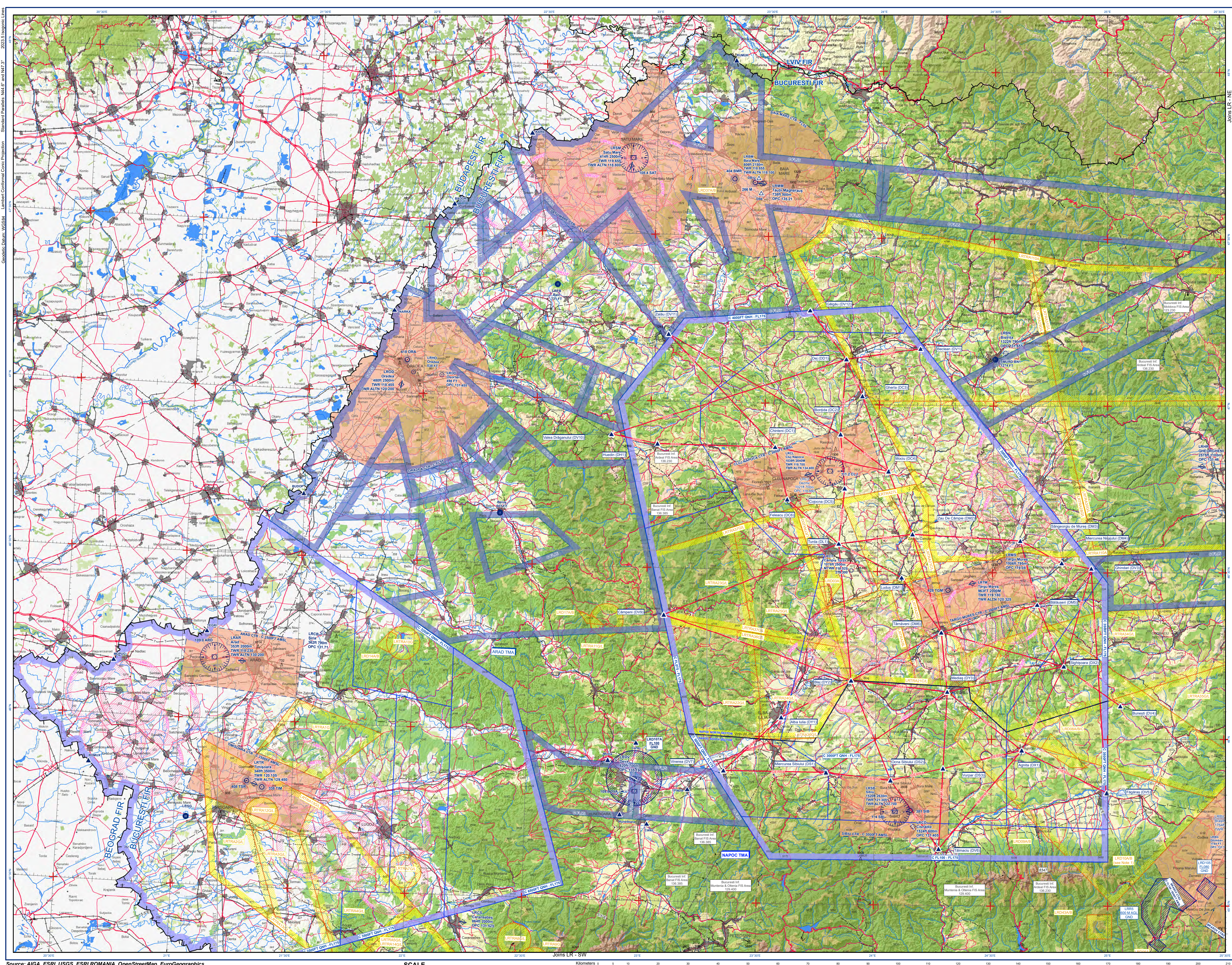
0 - 250 FT	251 - 500 FT	501 - 750 FT	751 - 1000 FT	1001 - 1500 FT	1501 - 2000 FT	2001 - 3000 FT	3001 - 4000 FT	4001 - 5000 FT	5001 - 6000 FT	6001 - 7000 FT	7001 - 8247 FT
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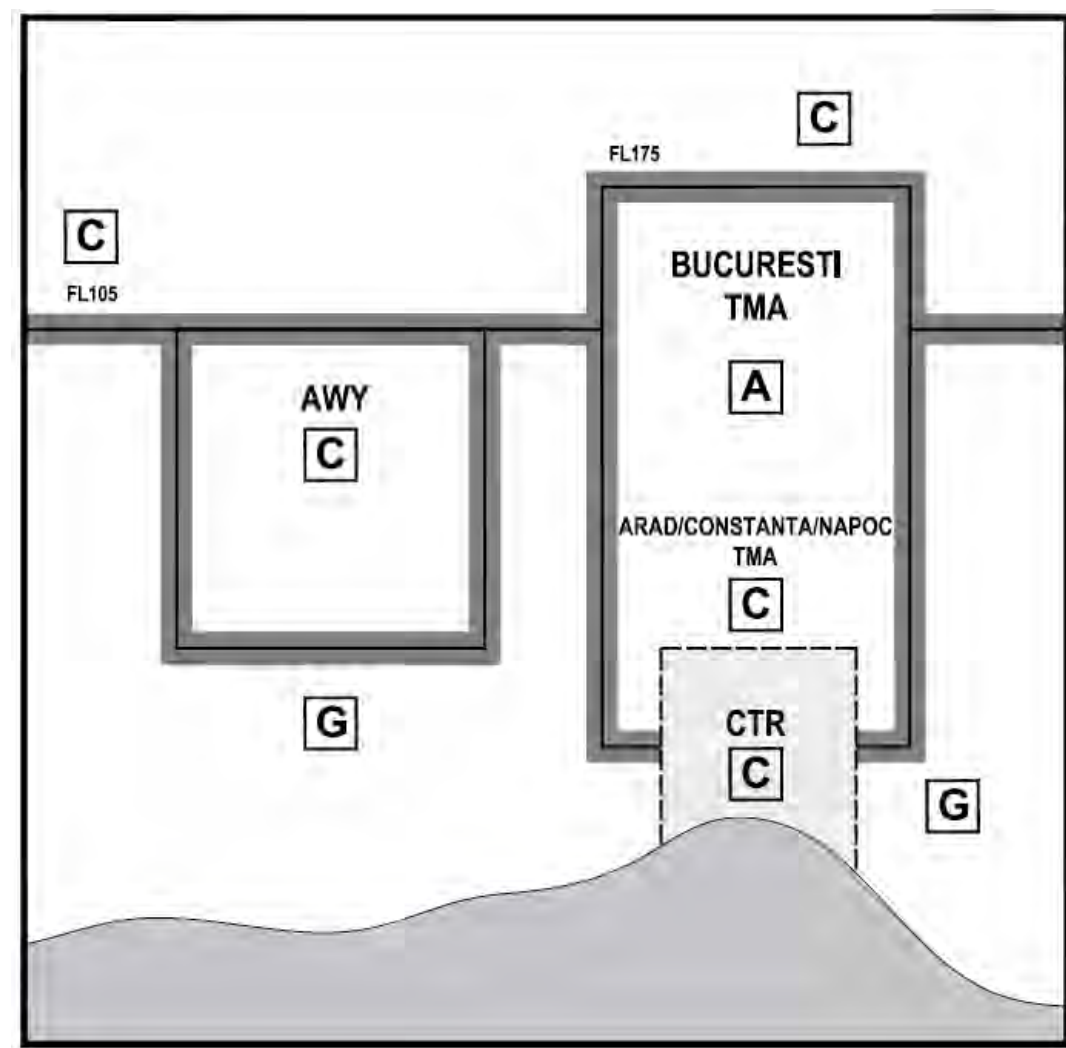
**OBSTACLES**

Obstacle with elevation (MSL)	The elevation of the highest spot on the chart
Lighted obstacle with elevation (MSL)	
Group obstacles with elevation (MSL)	Spot elevation with elevation (MSL)
Lighted group obstacles with elevation (MSL)	
Windmill with elevation (MSL)	
Man-made obstacle with elevation (MSL)	

**GENERAL**

City or large town, town	Village	Highway	Primary road	Secondary road	Railroad	Power Line	Bridge	Cable car installation	Tunnel	Forest	Grass	Orchard	Vineyard	River	Lakes	Swamp
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Airspace in BUCUREȘTI FIR is classified according to the provisions of the Commission Implementing Regulation (EU) No 923/2012 ("SERA Regulation"). Provisions of each class of airspace are described in the following paragraphs:

**Class A.** IFR flights only are permitted. All flights are provided with air traffic control service and are separated from each other. Continuous air-ground voice communications are required for all flights. All flights shall be subject to ATC clearance.  
In BUCUREȘTI FIR Airspace Class A comprises:  
- TMA BUCUREȘTI.

**Class C.** IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights and traffic avoidance advice on request. Continuous air-ground voice communications are required for all flights. For VFR flights a speed limitation of 250 kts (indicated airspeed) (IAS) applies below 3050 M (10000 FT) AMSL, except where approved by the Romanian CAA for aircraft types, which for technical or safety reasons, cannot maintain this speed. All flights shall be subject to ATC clearance.  
In BUCUREȘTI FIR Airspace Class C comprises:  
- all ATS routes;  
- all Aerodrome Control Zones (CTR): Arad, Bacău, Baia Mare, Băneasa, Otopeni, Chișinău, Constanța, Craiova, Iași, Oradea, Satu Mare, Sibiu, Suceava, Târgu Mureș, Timișoara, Tulcea;  
- CONSTANȚA TMA, ARAD TMA, NAPOC TMA;  
- Airspace above FL100.

**Class G.** IFR and VFR flights are permitted and receive flight information service if requested. All IFR flights shall be capable of establishing air-ground voice communications. A speed limitation of 250 kts IAS applies to all flights below 3050 M (10000 FT) AMSL, except where approved by the Romanian CAA for aircraft types, which for technical or safety reasons cannot maintain this speed. ATC clearance is not required.  
In BUCUREȘTI FIR Airspace Class G comprises:  
- airspace outside ATS routes;  
- all airspace not designated with another class (A, C) or as Restricted Areas.

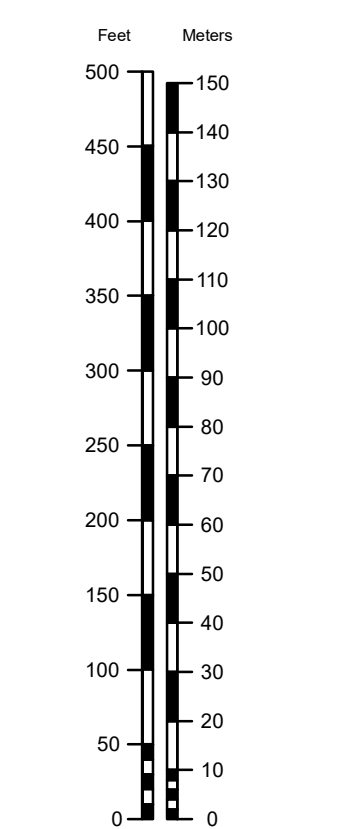
The requirements for the flights within each class of airspace are as shown in the following table:

Class	Type of flight	Separation provided	Service provided	Speed limitation <sup>(1)</sup>	Radio communication capability requirement	Continuous two-way air-ground voice communication required	Subject to an ATC clearance
A	IFR only	All aircraft	Air traffic control service	Not applicable	Yes	Yes	Yes
C	IFR from IFR from VFR	IFR from IFR from VFR	Air traffic control service	Not applicable	Yes	Yes	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR; 2) Air traffic control service, VFR/VFR traffic information (and traffic avoidance advice on request)	250 KT IAS below 10000 FT (3050 M) AMSL	Yes <sup>(2)</sup>	Yes	Yes
G	IFR	Nil	Flight information Service if requested	250 KT IAS below 10000 FT (3050 M) AMSL	Yes <sup>(2)</sup>	No <sup>(3)</sup>	No
	VFR	Nil	Flight information Service if requested	250 KT IAS below 10000 FT (3050 M) AMSL	No <sup>(2)</sup>	No <sup>(3)</sup>	No

<sup>(1)</sup> When the level of the transition altitude is lower than 3050 M (10000 FT) AMSL, FL100 should be used in lieu of 10000 FT. Competent authority may also exempt aircraft types, which for technical or safety reasons, cannot maintain this speed.  
<sup>(2)</sup> Pilots shall maintain continuous air-ground voice communication watch and establish two-way communication, as necessary, on the appropriate communication channel in RMZ.

NM to KM		KM to NM		FT to M		M to FT	
1 NM = 1.852 KM		1 KM = 0.54 NM		1 FT = 0.3048 M		1 M = 3.2808 FT	
NM	KM	KM	NM	FT	M	M	FT
0.1	0.185	0.1	0.05	1	0.305	1	3.28
0.2	0.37	0.2	0.11	2	0.61	2	6.56
0.3	0.556	0.3	0.16	3	0.914	3	9.84
0.4	0.741	0.4	0.22	4	1.219	4	13.12
0.5	0.926	0.5	0.27	5	1.524	5	16.4
0.6	1.111	0.6	0.32	6	1.829	6	19.69
0.7	1.296	0.7	0.38	7	2.134	7	22.97
0.8	1.482	0.8	0.43	8	2.438	8	26.25
0.9	1.667	0.9	0.49	9	2.743	9	29.53
1	1.852	1	0.54	10	3.048	10	32.81
2	3.704	2	1.08	20	6.096	20	65.62
3	5.556	3	1.62	30	9.144	30	98.43
4	7.408	4	2.16	40	12.192	40	131.23
5	9.26	5	2.7	50	15.24	50	164.04
6	11.112	6	3.24	60	18.288	60	196.85
7	12.964	7	3.78	70	21.336	70	229.66
8	14.816	8	4.32	80	24.384	80	262.47
9	16.668	9	4.86	90	27.432	90	295.28
10	18.52	10	5.4	100	30.48	100	328.08
20	37.04	20	10.8	200	60.96	200	656.17
30	55.56	30	16.2	300	91.44	300	984.25
40	74.08	40	21.6	400	121.92	400	1312.34
50	92.6	50	27	500	152.4	500	1640.42
60	111.12	60	32.4	600	182.88	600	1968.5
70	129.64	70	37.8	700	213.36	700	2296.59
80	148.16	80	43.2	800	243.84	800	2624.67
90	166.68	90	48.6	900	274.32	900	2952.76
100	185.2	100	54	1000	304.8	1000	3280.84
200	370.4	200	107.99	2000	609.6	2000	6561.68
300	555.6	300	161.99	3000	914.4	3000	9842.52
400	740.8	400	215.98	4000	1219.2	4000	13123.36
500	926	500	269.98	5000	1524	5000	16404.20
				6000	1828.8		
				7000	2133.6		
				8000	2438.4		
				9000	2743.2		
				10000	3048.0		

**FEET METER CONVERSION**



Letter	Morse Code	Keyword
A	· - - -	Alpha
B	- · - · -	Bravo
C	- - · - -	Charlie
D	- - - · -	Delta
E	- - - - ·	Echo
F	· - · - ·	Foxtrot
G	- · - - -	Golf
H	· - · - ·	Hotel
I	· - - - -	India
J	· - · - -	Juliett
K	- · - - -	Kilo
L	- · - · -	Lima
M	- - - - -	Mike
N	- · - · -	November
O	- - - - -	Oscar
P	· - - - -	Papa
Q	- - - · -	Quebec
R	· - - · -	Romeo
S	· - · - ·	Sierra
T	- · - · -	Tango
U	- - - - -	Uniform
V	· - · - -	Victor
W	- · - · -	Whiskey
X	- · - · -	X-ray
Y	- - - · -	Yankee
Z	- - - - ·	Zulu

Number	Morse Code	Keyword
0	- - - - -	Zero
1	· - - - -	One
2	· - · - -	Two
3	· - · - -	Three
4	· - · - -	Four
5	· - · - -	Five
6	· - · - -	Six
7	· - · - -	Seven
8	· - · - -	Eight
9	· - · - -	Nine

Table of cruising levels (SERA Appendix 3)

TRACK											
From 000 degrees to 179 degrees						From 180 degrees to 359 degrees					
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
Level			Level			Level			Level		
FL	Feet	Metres	FL	Feet	Metres	FL	Feet	Metres	FL	Feet	Metres
010	1000	300	-	-	-	020	2000	600	-	-	-
030	3000	900	035	3500	1050	040	4000	1200	045	4500	1350
050	5000	1500	055	5500	1700	060	6000	1850	065	6500	2000
070	7000	2150	075	7500	2300	080	8000	2450	085	8500	2600
090	9000	2750	095	9500	2900	100	10000	3050	105	10500	3200
110	11000	3350	115	11500	3500	120	12000	3650	125	12500	3800
130	13000	3950	135	13500	4100	140	14000	4250	145	14500	4400
150	15000	4550	155	15500	4700	160	16000	4900	165	16500	5050
170	17000	5200	175	17500	5350	180	18000	5500	185	18500	5650
190	19000	5800	195	19500	5950	200	20000	6100	205	20500	6250
210	21000	6400	215	21500	6550	220	22000	6700	225	22500	6850
230	23000	7000	235	23500	7150	240	24000	7300	245	24500	7450
250	25000	7600	255	25500	7750	260	26000	7900	265	26500	8100
270	27000	8250	275	27500	8400	280	28000	8550	285	28500	8700
290	29000	8850				300	30000	9150			
310	31000	9450				320	32000	9750			
330	33000	10050				340	34000	10350			
350	35000	10650				360	36000	10950			
370	37000	11300				380	38000	11600			
390	39000	11900				400	40000	12200			
410	41000	12500				430	43000	13100			
450	45000	13700				470	47000	14350			
490	49000	14950				510	51000	15550			
etc.	etc.	etc.				etc.	etc.	etc.			

**COMMUNICATION FACILITIES**

AERODROME CONTROL UNITS		
ARAD	TWR	118.230
	TWR ALTN	130.200
BACAU	TWR	120.980
	TWR ALTN	118.600
BAIA MARE	TWR	118.855
	TWR ALTN	118.100
BANEASA	TWR	125.205
	TWR ALTN	120.800
BRASOV	GND	129.950
	TWR	118.630
CLUJ	TWR	120.135
	TWR ALTN	118.705
CONSTANTA	TWR	124.030
	TWR ALTN	120.450
CRAIOVA	TWR	129.530
	TWR ALTN	124.300
IASI	TWR	119.955
	TWR ALTN	119.200
ORADEA	TWR	118.455
	TWR ALTN	120.200
OTOPENI	TWR	118.805
	TWR ALTN	120.900
SATU MARE	GND	121.855
	GND ALTN	121.700
SIBIU	TWR	119.655
	TWR ALTN	118.800
SUCEAVA	TWR	121.305
	TWR ALTN	122.700
TARGU MURES	TWR	129.955
	TWR ALTN	128.300
TIMISOARA	TWR	119.180
	TWR ALTN	120.325
TULCEA	TWR	120.105
	TWR ALTN	129.450
	GND	121.600
	TWR	119.755
	TWR	119.755
	TWR ALTN	120.300

APPROACH CONTROL UNITS	
ARAD APP/ ARAD APPROACH	123.530
	ALTN 126.350
BUCUREȘTI APP / BUCUREȘTI APPROACH	119.415
	ALTN 120.600
BUCUREȘTI APP / NAPOC NORTH APPROACH	126.430
	ALTN 127.275
BUCUREȘTI APP / NAPOC SOUTH APPROACH	119.680
	ALTN 127.275
CONSTANTA APP / CONSTANTA APPROACH	122.905
	ALTN 127.350

BUCUREȘTI	VOLMET	126.800
BRASOV	ATIS	124.530
BANEASA	ATIS	126.125
CLUJ	ATIS	125.525
CONSTANTA	ATIS	118.750
IASI	ATIS	122.865
OTOPENI	ATIS	118.500
SIBIU	ATIS	126.950
TIMISOARA	ATIS	123.125
TARGU MURES	ATIS	125.950

FLIGHT INFORMATION SERVICES	
BUCUREȘTI INFORMATION - MOLDOVA AREA	123.230
BUCUREȘTI INFORMATION - ARDEAL AREA	136.230
BUCUREȘTI INFORMATION - BANAT AREA	136.385
BUCUREȘTI INFORMATION - DOBROGEA AREA	129.235
BUCUREȘTI INFORMATION - MUNTENIA & OLTEANIA AREA	129.400

VFR flights which transit NAPOC TMA shall use the bidirectional VFR routes described below.

ROUTE	CITY	POINT*	COORDINATES	
			LATITUDE	LONGITUDE
ALFA	Gălgău	DV12	47°16'53"N	023°41'22"E
		DD1	47°08'10"N	023°51'08"E
		DC3	47°01'35"N	023°55'27"E
		DC4	46°48'06"N	024°02'34"E
		DM2	46°36'50"N	024°09'02"E
		DM6	46°19'12"N	024°16'44"E
BARU	Zau De Câmpie	DY3	46°08'31"N	024°18'26"E
		DS3	45°53'59"N	024°19'28"E
		DV6	45°40'15"N	024°16'33"E
		DV10	46°53'50"N	022°49'46"E
		DD1	47°08'10"N	023°51'08"E
		DV1	47°10'12"N	024°10'36"E
		DV10	46°53'50"N	022°49'46"E
		DH1	46°52'22"N	023°01'53"E
		DC1	46°52'11"N	023°32'46"E
		DC4	46°48'06"N	024°02'34"E
SIERRA	Târnăveni	DV7	45°53'49"N	023°20'55"E
		DS1	45°53'47"N	023°47'24"E
		DS2	45°52'29"N	024°04'00"E
		DS3	45°53'59"N	024°19'28"E
		DX1	45°58'05"N	024°37'47"E
		DV5	45°50'26"N	024°59'44"E
		DV11	47°12'09"N	023°04'08"E
		DC1	46°52'11"N	023°32'46"E
		DC6	46°42'48"N	023°36'10"E
		DL1	46°34'58"N	023°49'47"E
KIL0	Blaj	DY2	46°10'22"N	023°53'30"E
		DS2	45°52'29"N	024°04'00"E
		DV6	45°40'15"N	024°16'33"E
		DV11	47°12'09"N	023°04'08"E
		DC2	46°54'38"N	023°49'52"E
		DC4	46°48'06"N	024°02'34"E
		DV4	46°06'04"N	025°03'14"E
		DX2	46°13'11"N	024°48'35"E
		DM		