REPUBLIC OF THE PHILIPPINES
NATIONAL TELECOMMUNICATIONS COMMISSION
NTC Building, BIR Road, East Triangle, Diliman, Quezon City
Email: *ntc@ntc.gov.ph*; website: *http://www.ntc.gov.ph*

MEMORANDUM CIRCULAR
No. 02-06-2019

SUBJECT : **FREQUENCY BAND ALLOCATION AND TYPES OF EMISSIONS FOR AMATEUR RADIO SERVICE**

Pursuant to Act No. 3846, as amended; Executive Order No. 546; Item No. 2.2.2 of Section I and Item No. 1.1.2 of Section III of NTC Memorandum Circular No. 03-08-2012; and other relevant regulations, the following frequency band allocation and types of emissions for amateur radio service are hereby promulgated:

Section I. **DEFINITIONS**

1. The following definitions are hereby adopted for this Circular:

1.1 **Continuous Wave (CW) or Morse Code** – is a radio wave of constant amplitude and constant frequency. As a modulation form, CW is defined as an interrupted continuous wave, which is on/off, keyed using Morse code. [Recommendation ITU-R F.1610 (2003)].

1.2 **Telephony (also known as Phone)** is a form of telecommunication primarily intended for the exchange of information in the form of speech. [Recommendation ITU-R V.662-3].

Image refers to facsimile or television. Facsimile is a form of telegraphy for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form [ITU Radio Regulations 1.122]. Television is a form of telecommunication for the transmission of transient images of fixed or moving objects [ITU Radio Regulations 1.128]

For purposes of this Circular, **PI** is short for Telephony and Image.

1.3 **RTTY or Data (RD)** – is an information that is represented by a code consisting of a sequence of discrete elements. Digital data is produced by teletypewriters, digital facsimile equipment and computer terminals among other sources. The signals are generally transmitted by digital to analog conversion to Frequency Shift Keying (FSK) or Phase Shift Keying (PSK). [Recommendation ITU-R F.1610 (2003)].

1.4 **Primary Service (PRI)** – is a radio service wherein stations are entitled to protection from harmful interference caused by any other radio frequency/spectrum user that may be authorized to use the same radio frequency / spectrum on secondary basis.

1.5 **Secondary Service (Sec)** – is a radio service wherein stations: a) shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date; b) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date; and c) can claim protection, however, from harmful interference from stations of the same or other secondary service/s to which frequencies may be assigned at a later date.

Section II. **FREQUENCY BAND ALLOCATION AND TYPES OF EMISSIONS BY LICENSE CLASS**

Radio amateur license holders, depending on their license class, shall be authorized to operate only within the prescribed frequency bands and types of emissions as indicated in Annexes 1 and 2 of this Circular.

Section III. **REPEALING CLAUSE**

This Circular supersedes or amends any existing circular, memorandum, order or parts thereof which are inconsistent herewith.

Section IV. **EFFECTIVITY**

This Circular shall take effect fifteen (15) days after publication in a newspaper of general circulation and three (3) certified true copies furnished the UP Law Center.

Quezon City, Philippines, 11 June 2019.

GAMALIEL A. CORDOBA
Commissioner

EDGARDO V. CABARIOS
Deputy Commissioner

DELILAH F. DELES
Deputy Commissioner

Annex 1-a (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
1 135.7 kHz. 137.8 kHz. Sec **CW/PI/RD**			
2 472.0 kHz. 479.0 kHz. Sec **CW/PI/RD**			
1.800 MHz. 2.000 MHz. PRI **CW/PI/RD**			
3.500 MHz. 3.535 MHz. PRI **CW/RD**	3.500 MHz. 3.535 MHz. PRI **CW/RD**		
3.535 MHz. 3.660 MHz. PRI **CW/PI/RD**	3.535 MHz. 3.660 MHz. PRI **CW/PI/RD**		
3.660 MHz. 3.900 MHz. PRI **CW/PI**	3.660 MHz. 3.900 MHz. PRI **CW/PI**		
3 5.3515 MHz. 5.3665 MHz. Sec **CW/PI/RD**	3 5.3515 MHz. 5.3665 MHz. Sec **CW/PI/RD**	3 5.3515 MHz. 5.3665 MHz. Sec **CW/PI**	
7.000 MHz. 7.025 MHz. PRI **CW/RD**	7.000 MHz. 7.025 MHz. PRI **CW/RD**	7.000 MHz. 7.025 MHz. PRI **CW/RD**	
7.025 MHz. 7.125 MHz. PRI **CW/PI/RD**	7.025 MHz. 7.125 MHz. PRI **CW/PI/RD**	7.025 MHz. 7.125 MHz. PRI **CW/PI/RD**	

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data

PRI : Primary Service
Sec : Secondary Service

1 : Refer to 5.67A Footnotes of ITU RR (Annex 3)
2 : Refer to 5.80A Footnotes of ITU RR (Annex 3)
3 : Refer to 5.133B Footnotes of ITU RR (Annex 3)

Annex 1-b (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
7.125 MHz. 7.200 MHz. PRI **CW/PI**	7.125 MHz. 7.200 MHz. PRI **CW/PI**	7.125 MHz. 7.200 MHz. PRI **CW/PI**	
10.100 MHz. 10.130 MHz. Sec **CW**	10.100 MHz. 10.130 MHz. Sec **CW**		
10.130 MHz. 10.150 MHz. Sec **CW/RD**	10.130 MHz. 10.150 MHz. Sec **CW/RD**		
14.000 MHz. 14.070 MHz. PRI **CW**	14.000 MHz. 14.070 MHz. PRI **CW**		
14.070 MHz. 14.100 MHz. PRI **CW/RD**	14.070 MHz. 14.100 MHz. PRI **CW/RD**		
14.100 MHz. 14.112 MHz. PRI **CW/PI/RD**	14.100 MHz. 14.112 MHz. PRI **CW/RD**		
14.112 MHz. 14.275 MHz. PRI **CW/PI**	14.112 MHz. 14.275 MHz. PRI **CW**		
14.275 MHz. 14.350 MHz. PRI **CW/PI**	14.275 MHz. 14.350 MHz. PRI **CW/PI**		
18.068 MHz. 18.095 MHz. PRI **CW**	18.068 MHz. 18.095 MHz. PRI **CW**		

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data
PRI : Primary Service
Sec : Secondary Service

Annex 1-c (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
18.095 MHz. 18.110 MHz. PRI CW/RD	18.095 MHz. 18.110 MHz. PRI CW/RD		
18.110 MHz. 18.120 MHz. PRI CW/PI/RD	18.110 MHz. 18.120 MHz. PRI CW/PI/RD		
18.120 MHz. 18.168 MHz. PRI CW/PI	18.120 MHz. 18.168 MHz. PRI CW/PI		
21.000 MHz. 21.070 MHz. PRI CW	21.000 MHz. 21.070 MHz. PRI CW	21.000 MHz. 21.070 MHz. PRI CW	
21.070 MHz. 21.125 MHz. PRI CW/RD	21.070 MHz. 21.125 MHz. PRI CW/RD	21.070 MHz. 21.125 MHz. PRI CW/RD	
21.125 MHz. 21.150 MHz. PRI CW/PI/RD	21.125 MHz. 21.150 MHz. PRI CW/RD	21.125 MHz. 21.150 MHz. PRI CW/RD	
21.150 MHz. 21.225 MHz. PRI CW/PI	21.150 MHz. 21.225 MHz. PRI CW	21.150 MHz. 21.225 MHz. PRI CW	
21.225 MHz. 21.275 MHz. PRI CW/PI	21.225 MHz. 21.275 MHz. PRI CW/PI	21.225 MHz. 21.275 MHz. PRI CW	
21.275 MHz. 21.450 MHz. PRI CW/PI	21.275 MHz. 21.450 MHz. PRI CW/PI	21.275 MHz. 21.450 MHz. PRI CW/PI	

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data
PRI : Primary Service
Sec : Secondary Service

Annex 1-d (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
24.890 MHz. 24.915 MHz. **PRI** **CW**	24.890 MHz. 24.915 MHz. **PRI** **CW**		
24.915 MHz. 24.930 MHz. **PRI** **CW/RD**	24.915 MHz. 24.930 MHz. **PRI** **CW/RD**		
24.930 MHz. 24.940 MHz. **PRI** **CW/PI/RD**	24.930 MHz. 24.940 MHz. **PRI** **CW/PI/RD**		
24.940 MHz. 24.990 MHz. **PRI** **CW/PI**	24.940 MHz. 24.990 MHz. **PRI** **CW/PI**		
28.000 MHz. 28.070 MHz. **PRI** **CW**	28.000 MHz. 28.070 MHz. **PRI** **CW**	28.000 MHz. 28.070 MHz. **PRI** **CW**	
28.070 MHz. 28.190 MHz. **PRI** **CW/RD**	28.070 MHz. 28.190 MHz. **PRI** **CW/RD**	28.070 MHz. 28.190 MHz. **PRI** **CW/RD**	
28.190 MHz. 28.300 MHz. **PRI** **CW**	28.190 MHz. 28.300 MHz. **PRI** **CW**	28.190 MHz. 28.300 MHz. **PRI** **CW**	
28.300 MHz. 28.400 MHz. **PRI** **CW/PI**	28.300 MHz. 28.400 MHz. **PRI** **CW**	28.300 MHz. 28.400 MHz. **PRI** **CW**	
28.400 MHz. 28.500 MHz. **PRI** **CW/PI**	28.400 MHz. 28.500 MHz. **PRI** **CW/PI**	28.400 MHz. 28.500 MHz. **PRI** **CW**	

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data
PRI : Primary Service
Sec : Secondary Service

Annex 1-e (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
28.500 MHz. 29.000 MHz. PRI CW/PI	28.500 MHz. 29.000 MHz. PRI CW/PI	28.500 MHz. 29.000 MHz. PRI CW/PI	
29.000 MHz. 29.700 MHz. PRI CW/PI D	29.000 MHz. 29.700 MHz. PRI CW/PI D	29.000 MHz. 29.700 MHz. PRI CW/PI D	
50.000 MHz. 50.110 MHz. PRI CW	50.000 MHz. 50.110 MHz. PRI CW		
50.110 MHz. 54.000 MHz. PRI CW/PI/RD	50.110 MHz. 54.000 MHz. PRI CW/PI/RD		
144.000 MHz. 144.100 MHz. PRI CW	144.000 MHz. 144.100 MHz. PRI CW	144.000 MHz. 144.100 MHz. PRI CW	144.000 MHz. 144.100 MHz. PRI CW
144.100 MHz. 146.000 MHz. PRI CW/PI/RD	144.100 MHz. 146.000 MHz. PRI CW/PI/RD	144.100 MHz. 146.000MHz. PRI CW/PI/RD	144.100 MHz. 146.000 MHz. PRI CW/PI/RD
4, 5 420.000 MHz. 450.000 MHz. Sec CW/PI/RD	4, 5 420.000 MHz. 450.000 MHz. Sec CW/PI/RD	4, 5 420.000 MHz. 450.000 MHz. Sec CW/PI/RD	
1240.000 MHz. 1300.000 MHz. Sec CW/PI/RD	5 1240.000 MHz. 1300.000 MHz. Sec CW/PI/RD		
5, 6 2300.000 MHz. 2450.000 MHz. Sec CW/PI/RD	5, 6 2300.000 MHz. 2450.000 MHz. Sec CW/PI/RD		

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data

PRI : Primary Service
Sec : Secondary Service
D : Data

4 : Refer to 5.270 Footnotes of ITU RR (Annex 3)
5 : Refer to 5.282 Footnotes of ITU RR (Annex 3)
6 : Refer to 5.150 Footnotes of ITU RR (Annex 3)

Annex 1-f (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
7 3300.000 MHz. 3400.000 MHz. **Sec** **CW/PI/RD**	**7** 3300.000 MHz. 3400.000 MHz. **Sec** **CW/PI/RD**		
5 3400.000 MHz. 3500.000 MHz. **Sec** **CW/PI/RD**	**5** 3400.000 MHz. 3500.000 MHz. **Sec** **CW/PI/RD**		
5, 6 5650.000 MHz. 5850.000 MHz. **Sec** **CW/PI/RD**	**5, 6** 5650.000 MHz. 5850.000 MHz. **Sec** **CW/PI/RD**		
10.000 GHz. 10.450 GHz. **Sec** **CW/PI/RD**	10.000 GHz. 10.450 GHz. **Sec** **CW/PI/RD**		
10.450 GHz. 10.500 GHz. **Sec** **CW/PI/RD**	10.450 GHz. 10.500 GHz. **Sec** **CW/PI/RD**		
6 24.000 GHz. 24.050 GHz. **PRI** **CW/PI/RD**	**6** 24.000 GHz. 24.050 GHz. **PRI** **CW/PI/RD**		
6 24.050 GHz. 24.250 GHz. **Sec** **CW/PI/RD**	**6** 24.050 GHz. 24.250 GHz. **Sec** **CW/PI/RD**		
47.000 GHz. 47.200 GHz. **PRI** **CW/PI/RD**	47.000 GHz. 47.200 GHz. **PRI** **CW/PI/RD**		
7 76.000 GHz. 77.500 GHz. **Sec** **CW/PI/RD**	**7** 76.000 GHz. 77.500 GHz. **Sec** **CW/PI/RD**		

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data

PRI : Primary Service
Sec : Secondary Service

5 : Refer to 5.282 Footnotes of ITU RR (Annex 3)
6 : Refer to 5.150 Footnotes of ITU RR (Annex 3)
7 : Refer to 5.149 Footnotes of ITU RR (Annex 3)

Annex 1-g (MC No. 02-06-2019)

EXTRA CLASS (A)	GENERAL CLASS (B)	TECHNICIAN CLASS (C)	FOUNDATION CLASS (D)
7 77.500 GHz. 78.000 GHz. **PRI** **CW/PI/RD**	**7** 77.500 GHz. 78.000 GHz. **PRI** **CW/PI/RD**		
7 78.000 GHz. 81.000 GHz. **Sec** **CW/PI/RD**	**7** 78.000 GHz. 81.000 GHz. **Sec** **CW/PI/RD**		
134.000 GHz. 136.000 GHz. **PRI** **CW/PI/RD**	134.000 GHz. 136.000 GHz. **PRI** **CW/PI/RD**		
7 136.000 GHz. 141.000 GHz. **Sec** **CW/PI/RD**	**7** 136.000 GHz. 141.000 GHz. **Sec** **CW/PI/RD**		
7 241.000 GHz. 248.000 GHz. **Sec** **CW/PI/RD**	**7** 241.000 GHz. 248.000 GHz. **Sec** **CW/PI/RD**		
7 248.000 GHz. 250.000 GHz. **PRI** **CW/PI/RD**	**7** 248.000 GHz. 250.000 GHz. **PRI** **CW/PI/RD**		

CW : Continuous Wave or Morse Code
PI : Phone or Image
RD : RTTY or Data

PRI : Primary Service
Sec : Secondary Service

7 : Refer to 5.149 Footnotes of ITU RR (Annex 3)

Annex 2-a (MC No. 02-06-2019)

AMATEUR FREQUENCY BANDS AND TYPES OF EMISSION

FREQUENCY BANDS FOR CLASS A	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS B	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS C	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS D	TYPES OF EMISSION
135.7 - 137.8 kHz.	4						
472.0 - 479.0 kHz.	4						
1.800 - 2.000 MHz.	4						
3.500 - 3.535 MHz.	3	3.500 - 3.535 MHz.	3				
3.535 - 3.660 MHz.	4	3.535 - 3.660 MHz.	4				
3.660 - 3.900 MHz.	2	3.660 - 3.900 MHz.	2				
5.3515 - 5.3665 MHz.	4	5.3515 - 5.3665 MHz.	4	5.3515 - 5.3665 MHz.	2		
7.000 - 7.025 MHz.	3	7.000 - 7.025 MHz.	3	7.000 - 7.025 MHz.	3		
7.025 - 7.125 MHz.	4	7.025 - 7.125 MHz.	4	7.025 - 7.125 MHz.	4		
7.125 - 7.200 MHz.	2	7.125 - 7.200 MHz.	2	7.125 - 7.200 MHz.	2		
10.100 - 10.130 MHz.	1	10.100 - 10.130 MHz.	1				
10.130 - 10.150 MHz.	3	10.130 - 10.150 MHz.	3				
14.000 - 14.070 MHz.	1	14.000 - 14.070 MHz.	1				
14.070 - 14.100 MHz.	3	14.070 - 14.100 MHz.	3				
14.100 - 14.112 MHz.	4	14.100 - 14.112 MHz.	3				
14.112 - 14.275 MHz.	2	14.112 - 14.275 MHz.	1				
14.275 - 14.350 MHz.	2	14.275 - 14.350 MHz.	2				
18.068 - 18.095 MHz.	1	18.068 - 18.095 MHz.	1				
18.095 - 18.110 MHz.	3	18.095 - 18.110 MHz.	3				
18.110 - 18.120 MHz.	4	18.110 - 18.120 MHz.	4				
18.120 - 18.168 MHz.	2	18.120 - 18.168 MHz.	2				
21.000 - 21.070 MHz.	1	21.000 - 21.070 MHz.	1	21.000 - 21.070 MHz.	1		
21.070 - 21.125 MHz.	3	21.070 - 21.125 MHz.	3	21.070 - 21.125 MHz.	3		
21.125 - 21.150 MHz.	4	21.125 - 21.150 MHz.	3	21.125 - 21.150 MHz.	3		

TYPES OF EMISSION

1	CW	:	A1A, J2A, J2B
2	CW/PI	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F
3	CW/RD	:	A1A, J2A, J2B/A1A, A2A, F1B, J2B, F1C, F2D
4	CW/PI/RD	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F/A1A, A2A, F1B, J2B, F1C, F2D
5	D	:	FXD, FXE, F1D, F2D, F7W

Annex 2-b (MC No. 02-06-2019)

AMATEUR FREQUENCY BANDS AND TYPES OF EMISSION

FREQUENCY BANDS FOR CLASS A	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS B	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS C	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS D	TYPES OF EMISSION
21.150 - 21.225 MHz.	2	21.150 - 21.225 MHz.	1	21.150 - 21.225 MHz.	1		
21.225 - 21.275 MHz.	2	21.225 - 21.275 MHz.	2	21.225 - 21.275 MHz.	1		
21.275 - 21.450 MHz.	2	21.275 - 21.450 MHz.	2	21.275 - 21.450 MHz.	2		
24.890 - 24.915 MHz.	1	24.890 - 24.915 MHz.	1				
24.915 - 24.930 MHz.	3	24.915 - 24.930 MHz.	3				
24.930 - 24.940 MHz.	4	24.930 - 24.940 MHz.	4				
24.940 - 24.990 MHz.	2	24.940 - 24.990 MHz.	2				
28.000 - 28.070 MHz.	1	28.000 - 28.070 MHz.	1	28.000 - 28.070 MHz.	1		
28.070 - 28.190 MHz.	3	28.070 - 28.190 MHz.	3	28.070 - 28.190 MHz.	3		
28.190 - 28.300 MHz.	1	28.190 - 28.300 MHz.	1	28.190 - 28.300 MHz.	1		
28.300 - 28.400 MHz.	2	28.300 - 28.400 MHz.	1	28.300 - 28.400 MHz.	1		
28.400 - 28.500 MHz.	2	28.400 - 28.500 MHz.	2	28.400 - 28.500 MHz.	1		
28.500 - 29.000 MHz.	2	28.500 - 29.000 MHz.	2	28.500 - 29.000 MHz.	2		
29.000 - 29.700 MHz.	2, 5	29.000 - 29.700 MHz.	2, 5	29.000 - 29.700 MHz.	2, 5		
50.000 - 50.110 MHz.	1	50.000 - 50.110 MHz.	1				
50.110 - 51.000 MHz.	4	50.110 - 51.000 MHz.	4				
51.000 54.000 MHz.	4, 5	51.000 54.000 MHz.	4, 5				
144.000 - 144.100 MHz.	1	144.000 - 144.100 MHz.	1	144.000 - 144.100 MHz.	1	144.000 - 144.100 MHz.	1
144.100 - 146.000 MHz.	4	144.100 - 146.000 MHz.	4	144.100 - 146.000 MHz.	4	144.100 - 146.000 MHz.	4
420.000 - 450.000 MHz.	4, 5	420.000 - 450.000 MHz.	4, 5	420.000 - 450.000 MHz.	4, 5		
1240.000 - 1300.000 MHz.	4	1240.000 - 1300.000 MHz.	4				
2300.000 - 2450.000 MHz.	4	2300.000 - 2450.000 MHz.	4				
3300.000 - 3400.000 MHz.	4	3300.000 - 3400.000 MHz.	4				
3400.000 - 3500.000 MHz.	4	3400.000 - 3500.000 MHz.	4				
5650.000 - 5850.000 MHz.	4	5650.000 - 5850.000 MHz.	4				

TYPES OF EMISSION

1	CW	:	A1A, J2A, J2B
2	CW/PI	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F
3	CW/RD	:	A1A, J2A, J2B/A1A, A2A, F1B, J2B, F1C, F2D
4	CW/PI/RD	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F/A1A, A2A, F1B, J2B, F1C, F2D
5	D	:	FXD, FXE, F1D, F2D, F7W

Annex 2-c (MC No. 02-06-2019)

AMATEUR FREQUENCY BANDS AND TYPES OF EMISSION

FREQUENCY BANDS FOR CLASS A	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS B	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS C	TYPES OF EMISSION	FREQUENCY BANDS FOR CLASS D	TYPES OF EMISSION
10.000 - 10.450 GHz.	4	10.000 - 10.450 GHz.	4				
10.450 - 10.500 GHz.	4	10.450 - 10.500 GHz.	4				
24.000 - 24.050 GHz.	4	24.000 - 24.050 GHz.	4				
24.050 - 24.250 GHz.	4	24.050 - 24.250 GHz.	4				
47.000 - 47.200 GHz.	4	47.000 - 47.200 GHz.	4				
76.000 - 77.500 GHz.	4	76.000 - 77.500 GHz.	4				
77.500 - 78.000 GHz.	4	77.500 - 78.000 GHz.	4				
78.000 - 81.000 GHz.	4	78.000 - 81.000 GHz.	4				
134.000 - 136.000 GHz.	4	134.000 - 136.000 GHz.	4				
136.000 - 141.000 GHz.	4	136.000 - 141.000 GHz.	4				
241.000 - 248.000 GHz.	4	241.000 - 248.000 GHz.	4				
248.000 - 250.000 GHz.	4	248.000 - 250.000 GHz.	4				

TYPES OF EMISSION

1	CW	:	A1A, J2A, J2B
2	CW/PI	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F
3	CW/RD	:	A1A, J2A, J2B/A1A, A2A, F1B, J2B, F1C, F2D
4	CW/PI/RD	:	A1A, J2A, J2B/A3E, F3E, J3E; C3F, J3C, R3C, J3F/A1A, A2A, F1B, J2B, F1C, F2D
5	D	:	FXD, FXE, F1D, F2D, F7W