US Amateur Radio Bands

US AMATEUR POWER LIMITS — FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

KEY

Note:

CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.

Test transmissions are authorized above 51 MHz, except for 219-220 MHz

- ▒ = RTTY and data
- ■ = phone and image
- ▨ = CW only
- ▥ = SSB phone
- ▤ = USB phone, CW, RTTY, and data.
- ▦ = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See *www.arrl.org/band-plan* for detailed band plans.

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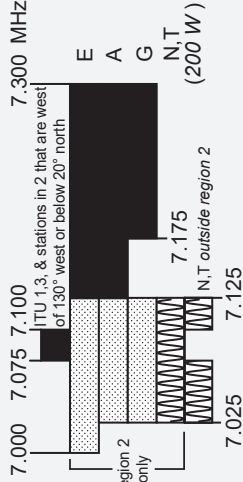email: membership@arrl.org

Getting Started in Amateur Radio:
Toll-Free 1-800-326-3942 (860-594-0355)
email: newham@arrl.org

Exams: 860-594-0300 email: vec@arrl.org
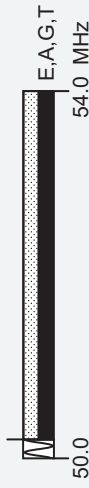
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2,200 Meters (135 kHz)
E,A,G
135.7 kHz   1 W EIRP maximum   **137.8 kHz**

630 Meters (472 kHz)
E,A,G
472 kHz
5 W EIRP maximum, except in Alaska within 496 miles of Russia where the power limit is 1 W EIRP.
479 kHz

Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at **https://utc.org/plc-database-amateur-notification-process/** You need only register once for each band.

160 Meters (1.8 MHz)
E,A,G
1.800   1.900   2.000 MHz
Avoid interference to radiolocation operations from 1.900 to 2.000 MHz

80 Meters (3.5 MHz)
E
A
G
N,T (*200 W*)
3.500   3.600   3.700   3.800   4.000 MHz

60 Meters (5.3 MHz)
CW, 5332 5348 5358.5 5373 5405 kHz
Dig
2.8 kHz
USB
E,A,G (*100 W*)
5330.5 5346.5 5357.0 5371.5 5403.5 kHz
General, Advanced, and Extra licensees may operate on a secondary basis with a maximum ERP of 100 W (relative to a half-wave dipole antenna).

40 Meters (7 MHz)
E
A
G
N,T (*200 W*)
7.000   7.025   7.075   7.100   7.125   7.175   7.300 MHz
Region 2 only
ITU 1,3, & stations in 2 that are west of 130° west or below 20° north
N,T outside region 2

30 Meters (10.1 MHz)
E,A,G
200 Watts PEP.
10.100   10.150 MHz
Avoid interference to fixed services outside the US.
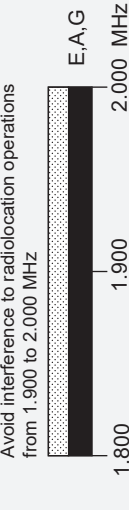See Sections 97.305(c), 97.307(f)(11) and 97.301(e). These exemptions do not apply to stations in the continental US.

20 Meters (14 MHz)
E
A
G
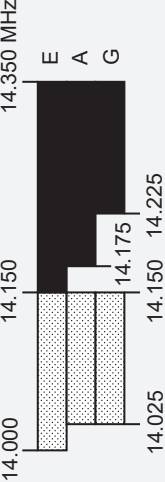14.000   14.025   14.150   14.175   14.225   14.350 MHz

17 Meters (18 MHz)
E,A,G
18.068   18.110   18.168 MHz

15 Meters (21 MHz)
E
A
G
N,T (*200 W*)
21.000   21.025   21.200   21.225   21.275   21.450 MHz

12 Meters (24 MHz)
E,A,G
24.890   24.930   24.990 MHz

10 Meters (28 MHz)
E,A,G
N,T (*200 W*)
28.000   28.300   28.500   29.700 MHz

6 Meters (50 MHz)
E,A,G
50.0   50.1   54.0 MHz

2 Meters (144 MHz)
E,A,G,T
144.0   144.1   148.0 MHz

1.25 Meters (222 MHz)
E,A,G,T
N (*25 W*)
219.0   220.0   222.0   225.0 MHz

70 cm (420 MHz)*
E,A,G,T
420.0   450.0 MHz

33 cm (902 MHz)*
E,A,G,T
902.0   928.0 MHz
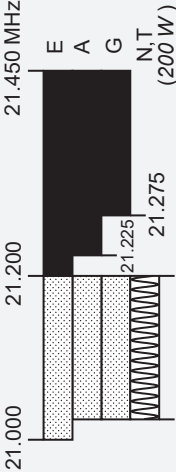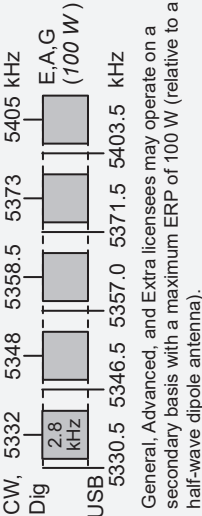
23 cm (1240 MHz)*
E,A,G,T
N (*5 W*)
1240   1270   1295   1300 MHz

***Geographical and power restrictions may apply to all bands above 420 MHz. See FCC Part 97.303 for information about your area.
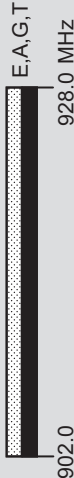
All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz ‡
2390-2450 MHz	24.0-24.25 GHz
3400-3450 MHz	47.0-47.2 GHz
5650-5925 MHz	76.0-81.0 GHz
	122.25-123.0 GHz
	134-141 GHz
	241-250 GHz
	All above 275 GHz

‡ No pulse emissions

A	.-	N	-.	0	-----	'	.----.
B	-...	O	---	1	.----	!	-.-.--
C	-.-.	P	.--.	2	..---	/	-..-.
D	-..	Q	--.-	3	...--	(	-.--.
E	.	R	.-.	4	....-	)	-.--.-
F	..-.	S	...	5	.....	&	.-...
G	--.	T	-	6	-....	:	---...
H	....	U	..-	7	--...	;	-.-.-.
I	..	V	...-	8	---..	=	-...-
J	.---	W	.--	9	----.	+	.-.-.
K	-.-	X	-..-	.	.-.-.-	-	-....-
L	.-..	Y	-.--	,	--..--	_	..--.-
M	--	Z	--..	?	..--..		

Morse code tree diagram

start

Dot · Dash ‒

E T
A N M
I U S · D K · G O
I S · U F · R W · D B · N K · G Z · M O
H V · S F · U · R L · W P · B X · D C · K Y · Z Q · O
5 4 · 3 · 2 · + · 1 · 6 = · / · 7 · 8 · 9 0
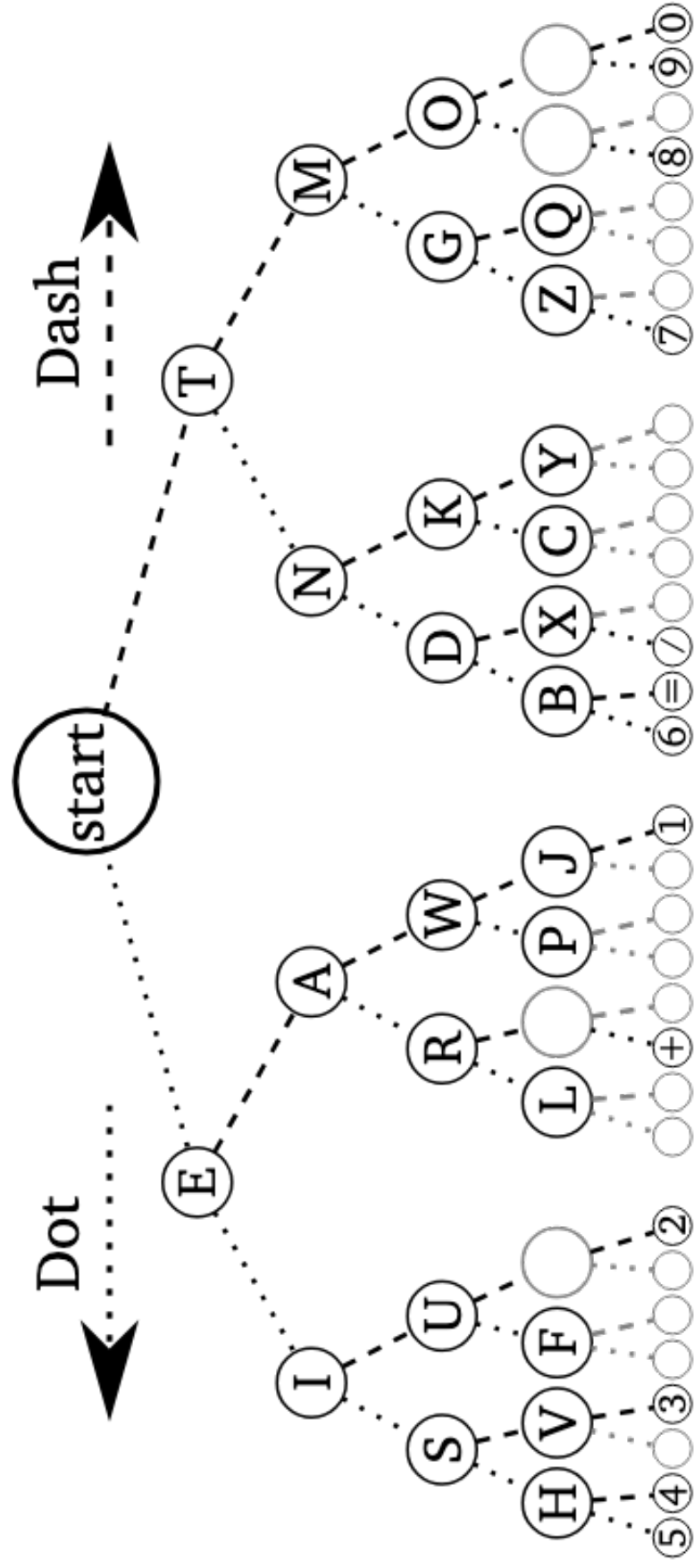
A	Alpha	**N**	November
B	Bravo	**O**	Oscar
C	Charlie	**P**	Papa
D	Delta	**Q**	Quebec
E	Echo	**R**	Romeo
F	Foxtrot	**S**	Sierra
G	Golf	**T**	Tango
H	Hotel	**U**	Uniform
I	India	**V**	Victor
J	Juliet	**W**	Thiskey
K	Kilo	**X**	X-ray
L	Lima	**Y**	Yankee
M	Mike	**Z**	Zulu

SSB

A (Calling CQ): "CQ CQ CQ, this is K1ABC, Kilo One Alpha Bravo Charlie, calling CQ and standing by."

B (Responding): "K1ABC, this is W2XYZ, Whiskey Two X-ray Yankee Zulu."

A: "W2XYZ, good afternoon, you're 59 here in Boston, Massachusetts. Name is John, Juliet Oscar Hotel November. Back to you, W2XYZ from K1ABC."

B: "Thanks John, you're 59 as well in New Jersey. Name is Mike, Mike India Kilo Echo. Nice to meet you, John. K1ABC, this is W2XYZ."

A: "Very good Mike, thanks for the QSO. 73 and have a great day. K1ABC is now clear."

SSB Contest

Activator (A) calling: "CQ POTA, CQ Parks on the Air, this is K1ABC, Kilo One Alpha Bravo Charlie, calling CQ POTA and standing by."

Hunter (B) responds: "K1ABC, this is W2XYZ."

Activator (A): "W2XYZ, you're 59 into park K-1234."

Hunter (B): "Thanks for the 59. You're 57 in New Jersey. 73!"

Activator (A): "Copy the 57 New Jersey. Thanks for hunting! QRZ, this is K1ABC, park K-1234."

CW

A (Calling CQ): "CQ CQ CQ DE K1ABC K1ABC K1ABC K"
(Calling any station, this is K1ABC, standing by)

B (Responding): "K1ABC DE W2XYZ W2XYZ K"
(*K1ABC, this is W2XYZ, over*)

A: "W2XYZ DE K1ABC UR 599 IN MA. NAME JOHN. HW? W2XYZ DE K1ABC K"
(*You're 599 in Massachusetts. My name is John. How do you copy?*)

B: "K1ABC DE W2XYZ R UR 589 IN NJ. NAME MIKE. RIG KX3, 10W. WX SUNNY. K1ABC DE W2XYZ K"
(*Roger, you're 589 in New Jersey. My name is Mike. My rig is a KX3 running 10 watts. Weather is sunny.*)

A: "R TNX MIKE. 73 ES HPE CUAGN. W2XYZ DE K1ABC SK"
(*Roger, thanks Mike. Best regards and hope to see you again. Signing off.*)

QRG	Your exact frequency (or that of ___) is ___kHz.	Will you tell me my exact frequency (or that of ___)?
QRL	I am busy (or busy with ___).	Are you busy? (Used to ask if frequency is in use)
QRM	Your transmission is being interfered with ___ (1–5).	Is my transmission being interfered with?
QRN	I am troubled by static ___ (1–5).	Are you troubled by static?
QRO	Increase power.	Shall I increase power?
QRP	Decrease power.	Shall I decrease power?
QRQ	Send faster (___wpm).	Shall I send faster?
QRS	Send more slowly (___wpm).	Shall I send more slowly?
QRT	Stop sending.	Shall I stop sending?
QRU	I have nothing for you.	Have you anything for me?
QRV	I am ready.	Are you ready?
QRX	I will call you again at ___ (on ___kHz).	When will you call me again?
QRZ	**You are being called by ___ (on ___kHz).**	**Who is calling me?**
QSB	Your signals are fading.	Are my signals fading?
QSK	I can hear you between signals.	Can I break in on your transmission?
QSL	**I am acknowledging receipt.**	**Can you acknowledge receipt?**
QSO	**I can communicate with ___ direct (or via ___).**	**Can you communicate with ___ direct or by relay?**
QSP	I will relay to ___.	Will you relay to ___?
QST	General call to all amateurs (CQ ARRL).	–
QSX	I am listening to ___ on ___kHz.	Will you listen to ___ on ___kHz?
QSY	Change to another frequency (or ___kHz).	Shall I change to another frequency?
QTC	I have ___ messages for you (or for ___).	How many messages have you to send?
QTH	**My location is ___.**	**What is your location?**
QTR	The time is ___.	What is the correct time?

Prosigns

AR	End of message	Often sent as "di-dah-di-dah-dit" (•–•–•)
AS	Stand by	"di-dah-di-di-dit"; used to ask someone to wait
BK	Break	Used to invite the other station to transmit immediately
BT	Separator	Break between thoughts or paragraphs ("dah-di-di-di-dah")
CL	Closing down	Used when signing off the air permanently or for the day
CQ	Calling any station	General call: "di-dah-di-dah" then "dah-dah-di-dah"
CT	Start of message	Used to begin formal traffic messages
EE	Error	Correcting a mistake; usually sent as "di-di-di-di" rapidly
K	Go ahead	Invitation for the other station to transmit
KN	Go ahead, named station only	Stronger version of K—only the called station should respond
R	Roger (message received)	Confirms receipt of last transmission
SK	End of contact	"Silent Key"; final sign-off (di-di-di-dah-di-dah)
SN	Understood	Used in formal message handling (equivalent to "QSL" or "Roger")

Frequency Uses

1.800–2.000	CW	14.233	D-SSTV
1.800–1.810	Digital Modes	14.236	Digital Voice
1.810	CW QRP calling	14.285	QRP SSB calling
1.843–2.000	SSB, SSTV and	14.286	AM calling
1.910	SSB QRP	18.100–	RTTY/Data
1.995–2.000	Experimental	18.105–	Automatically
1.999–2.000	Beacons	18.110	IBP/NCDXF
3.500–3.510	CW DX window	18.162.5	Digital Voice
3.560	QRP CW calling	21.060	QRP CW calling
3.570–3.600	RTTY/Data	21.070–	RTTY/Data
3.585–3.600	Automatically	21.090–	Automatically
3.590	RTTY/Data DX	21.150	IBP/NCDXF
3.790–3.800	DX window	21.340	SSTV
3.845	SSTV	21.385	QRP SSB calling
3.885	AM calling	24.920–	RTTY/Data
3.985	QRP SSB calling	24.925–	Automatically
7.030	QRP CW calling	24.930	IBP/NCDXF
7.040	RTTY/Data DX	28.060	QRP CW calling
7.070–7.125	RTTY/Data	28.070–	RTTY/Data
7.100–7.105	Automatically	28.120–	Automatically
7.171	SSTV	28.190–	Beacons
7.173	D-SSTV	28.200	IBP/NCDXF
7.285	QRP SSB calling	28.385	QRP SSB calling
7.290	AM calling	28.680	SSTV
10.130–	RTTY/Data	29.000–	AM
10.140–	Automatically	29.300–	Satellite downlinks
14.060	QRP CW calling	29.520–	Repeater inputs
14.070–	RTTY/Data	29.600	FM simplex
14.095–	Automatically	29.620–	Repeater outputs
14.100	IBP/NCDXF		
14.1005–	Automatically		
14.230	SSTV		

Callsign Prefix Codes

K, N, W	United States		EA	Spain
AA–AL	United States		CT	Portugal
VE	Canada		LU	Argentina
VA, VO, VY	Canada		PY	Brazil
ZL	New Zealand		CX	Uruguay
VK	Australia		YV	Venezuela
JA, JE, JH	Japan		XE	Mexico
G, M	United Kingdom		TI	Costa Rica
F	France		OA	Peru
DL	Germany		CE	Chile
I	Italy		HL	South Korea
ON	Belgium		BY, BG, BH	China
PA	Netherlands		HS	Thailand
SM, SA	Sweden		9V	Singapore
OH	Finland		VU	India
LA, LB	Norway		4X, 4Z	Israel
OE	Austria		ZS	South Africa
OK	Czech Republic		SU	Egypt
SP	Poland		A6	United Arab Emirates
HA	Hungary		A7	Qatar
YU	Serbia		A9	Bahrain
			9K	Kuwait

RR	RQ	RP	RO	RN	RM	RL	RK	RJ	RI	RH	RG	RF	RE	RD	RC	RB
QR	QQ	QP	QO	QN	QM	QL	QK	QJ	QI	QH	QG	QF	QE	QD	QC	QB
PR	PQ	PP	PO	PN	PM	PL	PK	PJ	PI	PH	PG	PF	PE	PD	PC	PB
OR	OQ	OP	OO	ON	OM	OL	OK	OJ	OI	OH	OG	OF	OE	OD	OC	OB
NR	NQ	NP	NO	NN	NM	NL	NK	NJ	NI	NH	NG	NF	NE	ND	NC	NB
MR	MQ	MP	MO	MN	MM	ML	MK	MJ	MI	MH	MG	MF	ME	MD	MC	MB
LR	LQ	LP	LO	LN	LM	LL	LK	LJ	LI	LH	LG	LF	LE	LD	LC	LB
KR	KQ	KP	KO	KN	KM	KL	KK	KJ	KI	KH	KG	KF	KE	KD	KC	KB
JR	JQ	JP	JO	JN	JM	JL	JK	JJ	JI	JH	JG	JF	JE	JD	JC	JB
IR	IQ	IP	IO	IN	IM	IL	IK	IJ	II	IH	IG	IF	IE	ID	IC	IB
HR	HQ	HP	HO	HN	HM	HL	HK	HJ	HI	HH	HG	HF	HE	HD	HC	HB
GR	GQ	GP	GO	GN	GM	GL	GK	GJ	GI	GH	GG	GF	GE	GD	GC	GB
FR	FQ	FP	FO	FN	FM	FL	FK	FJ	FI	FH	FG	FF	FE	FD	FC	FB
ER	EQ	EP	EO	EN	EM	EL	EK	EJ	EI	EH	EG	EF	EE	ED	EC	EB
DR	DQ	DP	DO	DN	DM	DL	DK	DJ	DI	DH	DG	DF	DE	DD	DC	DB
CR	CQ	CP	CO	CN	CM	CL	CK	CJ	CI	CH	CG	CF	CE	CD	CC	CB
BR	BQ	BP	BO	BN	BM	BL	BK	BJ	BI	BH	BG	BF	BE	BD	BC	BB
AR	AQ	AP	AO	AN	AM	AL	AK	AJ	AI	AH	AG	AF	AE	AD	AC	AB

FO70	FN79	FN78	FN77	FN76	FN75	FN74	FN73	FN72	FN71	FN70	FM79	FM78	FM77	FM76	FM75	FM74	FM73	FM72	FM71	FM70	FL79	FL78	FL77	FL76	FL75	FL74
FO60	FN69	FN68	FN67	FN66	FN65	FN64	FN63	FN62	FN61	FN60	FM69	FM68	FM67	FM66	FM65	FM64	FM63	FM62	FM61	FM60	FL69	FL68	FL67	FL66	FL65	FL64
FO50	FN59	FN58	FN57	FN56	FN55	FN54	FN53	FN52	FN51	FN50	FM59	FM58	FM57	FM56	FM55	FM54	FM53	FM52	FM51	FM50	FL59	FL58	FL57	FL56	FL55	FL54
FO40	FN49	FN48	FN47	FN46	FN45	FN44	FN43	FN42	FN41	FN40	FM49	FM48	FM47	FM46	FM45	FM44	FM43	FM42	FM41	FM40	FL49	FL48	FL47	FL46	FL45	FL44
FO30	FN39	FN38	FN37	FN36	FN35	FN34	FN33	FN32	FN31	FN30	FM39	FM38	FM37	FM36	FM35	FM34	FM33	FM32	FM31	FM30	FL39	FL38	FL37	FL36	FL35	FL34
FO20	FN29	FN28	FN27	FN26	FN25	FN24	FN23	FN22	FN21	FN20	FM29	FM28	FM27	FM26	FM25	FM24	FM23	FM22	FM21	FM20	FL29	FL28	FL27	FL26	FL25	FL24
FO10	FN19	FN18	FN17	FN16	FN15	FN14	FN13	FN12	FN11	FN10	FM19	FM18	FM17	FM16	FM15	FM14	FM13	FM12	FM11	FM10	FL19	FL18	FL17	FL16	FL15	FL14
FO00	FN09	FN08	FN07	FN06	FN05	FN04	FN03	FN02	FN01	FN00	FM09	FM08	FM07	FM06	FM05	FM04	FM03	FM02	FM01	FM00	FL09	FL08	FL07	FL06	FL05	FL04
EO90	EN99	EN98	EN97	EN96	EN95	EN94	EN93	EN92	EN91	EN90	EM99	EM98	EM97	EM96	EM95	EM94	EM93	EM92	EM91	EM90	EL99	EL98	EL97	EL96	EL95	EL94
EO80	EN89	EN88	EN87	EN86	EN85	EN84	EN83	EN82	EN81	EN80	EM89	EM88	EM87	EM86	EM85	EM84	EM83	EM82	EM81	EM80	EL89	EL88	EL87	EL86	EL85	EL84
EO70	EN79	EN78	EN77	EN76	EN75	EN74	EN73	EN72	EN71	EN70	EM79	EM78	EM77	EM76	EM75	EM74	EM73	EM72	EM71	EM70	EL79	EL78	EL77	EL76	EL75	EL74
EO60	EN69	EN68	EN67	EN66	EN65	EN64	EN63	EN62	EN61	EN60	EM69	EM68	EM67	EM66	EM65	EM64	EM63	EM62	EM61	EM60	EL69	EL68	EL67	EL66	EL65	EL64
EO50	EN59	EN58	EN57	EN56	EN55	EN54	EN53	EN52	EN51	EN50	EM59	EM58	EM57	EM56	EM55	EM54	EM53	EM52	EM51	EM50	EL59	EL58	EL57	EL56	EL55	EL54
EO40	EN49	EN48	EN47	EN46	EN45	EN44	EN43	EN42	EN41	EN40	EM49	EM48	EM47	EM46	EM45	EM44	EM43	EM42	EM41	EM40	EL49	EL48	EL47	EL46	EL45	EL44
EO30	EN39	EN38	EN37	EN36	EN35	EN34	EN33	EN32	EN31	EN30	EM39	EM38	EM37	EM36	EM35	EM34	EM33	EM32	EM31	EM30	EL39	EL38	EL37	EL36	EL35	EL34
EO20	EN29	EN28	EN27	EN26	EN25	EN24	EN23	EN22	EN21	EN20	EM29	EM28	EM27	EM26	EM25	EM24	EM23	EM22	EM21	EM20	EL29	EL28	EL27	EL26	EL25	EL24
EO10	EN19	EN18	EN17	EN16	EN15	EN14	EN13	EN12	EN11	EN10	EM19	EM18	EM17	EM16	EM15	EM14	EM13	EM12	EM11	EM10	EL19	EL18	EL17	EL16	EL15	EL14
EO00	EN09	EN08	EN07	EN06	EN05	EN04	EN03	EN02	EN01	EN00	EM09	EM08	EM07	EM06	EM05	EM04	EM03	EM02	EM01	EM00	EL09	EL08	EL07	EL06	EL05	EL04
DO90	DN99	DN98	DN97	DN96	DN95	DN94	DN93	DN92	DN91	DN90	DM99	DM98	DM97	DM96	DM95	DM94	DM93	DM92	DM91	DM90	DL99	DL98	DL97	DL96	DL95	DL94
DO80	DN89	DN88	DN87	DN86	DN85	DN84	DN83	DN82	DN81	DN80	DM89	DM88	DM87	DM86	DM85	DM84	DM83	DM82	DM81	DM80	DL89	DL88	DL87	DL86	DL85	DL84
DO70	DN79	DN78	DN77	DN76	DN75	DN74	DN73	DN72	DN71	DN70	DM79	DM78	DM77	DM76	DM75	DM74	DM73	DM72	DM71	DM70	DL79	DL78	DL77	DL76	DL75	DL74
DO60	DN69	DN68	DN67	DN66	DN65	DN64	DN63	DN62	DN61	DN60	DM69	DM68	DM67	DM66	DM65	DM64	DM63	DM62	DM61	DM60	DL69	DL68	DL67	DL66	DL65	DL64
DO50	DN59	DN58	DN57	DN56	DN55	DN54	DN53	DN52	DN51	DN50	DM59	DM58	DM57	DM56	DM55	DM54	DM53	DM52	DM51	DM50	DL59	DL58	DL57	DL56	DL55	DL54
DO40	DN49	DN48	DN47	DN46	DN45	DN44	DN43	DN42	DN41	DN40	DM49	DM48	DM47	DM46	DM45	DM44	DM43	DM42	DM41	DM40	DL49	DL48	DL47	DL46	DL45	DL44
DO30	DN39	DN38	DN37	DN36	DN35	DN34	DN33	DN32	DN31	DN30	DM39	DM38	DM37	DM36	DM35	DM34	DM33	DM32	DM31	DM30	DL39	DL38	DL37	DL36	DL35	DL34
DO20	DN29	DN28	DN27	DN26	DN25	DN24	DN23	DN22	DN21	DN20	DM29	DM28	DM27	DM26	DM25	DM24	DM23	DM22	DM21	DM20	DL29	DL28	DL27	DL26	DL25	DL24
DO10	DN19	DN18	DN17	DN16	DN15	DN14	DN13	DN12	DN11	DN10	DM19	DM18	DM17	DM16	DM15	DM14	DM13	DM12	DM11	DM10	DL19	DL18	DL17	DL16	DL15	DL14
DO00	DN09	DN08	DN07	DN06	DN05	DN04	DN03	DN02	DN01	DN00	DM09	DM08	DM07	DM06	DM05	DM04	DM03	DM02	DM01	DM00	DL09	DL08	DL07	DL06	DL05	DL04
CO90	CN99	CN98	CN97	CN96	CN95	CN94	CN93	CN92	CN91	CN90	CM99	CM98	CM97	CM96	CM95	CM94	CM93	CM92	CM91	CM90	CL99	CL98	CL97	CL96	CL95	CL94
CO80	CN89	CN88	CN87	CN86	CN85	CN84	CN83	CN82	CN81	CN80	CM89	CM88	CM87	CM86	CM85	CM84	CM83	CM82	CM81	CM80	CL89	CL88	CL87	CL86	CL85	CL84
CO70	CN79	CN78	CN77	CN76	CN75	CN74	CN73	CN72	CN71	CN70	CM79	CM78	CM77	CM76	CM75	CM74	CM73	CM72	CM71	CM70	CL79	CL78	CL77	CL76	CL75	CL74

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