

Horizon Quantum Tuning Guide

Date: 03-Jun-11
Version: HQ-SN-00 1.0.7



Horizon Quantum supports the following frequency bands:

	<u>Page</u>
Lower 6 GHz Frequency – Band One	2
Lower 6 GHz Frequency – Band Two	2
Upper 6 GHz Frequency – Band One (Limited Availability)	3
Upper 6 GHz Frequency – Band Two (Limited Availability)	3
Upper 6 GHz Frequency – Band Three (Limited Availability)	3
Upper 6 GHz Frequency – Band Four (Limited Availability)	4
11 GHz Frequency – Band One	5
11 GHz Frequency – Band Two	6
13 GHz Frequency – Band One	7
13 GHz Frequency – Band Two	8
18 GHz Frequency – Band One	9
18 GHz Frequency – Band Two	11
18 GHz Frequency – Band Three	13
18 GHz Frequency – Band Four (Limited Availability)	15
18 GHz Frequency – Band Five (Limited Availability)	15
23 GHz Frequency – Band One	16
23 GHz Frequency – Band Two	20
23 GHz Frequency – Band Three	25
26 GHz Frequency – ETSI Band A (Limited Availability)	32
26 GHz Frequency – ETSI Band B (Limited Availability)	33
26 GHz Frequency – ETSI Band D (Limited Availability)	34
28 GHz Frequency – Band A1X (Limited Availability)	35
28 GHz Frequency – Band A1Y (Limited Availability)	36
28 GHz Frequency – A2A3 (Limited Availability)	36
28 GHz Frequency – Band B (Limited Availability)	37
28 GHz Frequency – Band C (Limited Availability)	38
38 GHz Frequency – FCC Band A (Limited Availability)	39
38 GHz Frequency – FCC Band B (Limited Availability)	40
38 GHz Frequency – FCC Band C (Limited Availability)	41
38 GHz Frequency – ETSI Band A (Limited Availability)	42
38 GHz Frequency – ETSI Band B (Limited Availability)	43
38 GHz Frequency – ETSI Band C (Limited Availability)	44
38 GHz Frequency – ETSI Band D (Limited Availability)	45
38 GHz Frequency – ETSI Band E (Limited Availability)	46
Horizon Quantum Modulation Modes	47

When placing orders, please ensure the customer's licensing agent is aware that Horizon Quantum only currently supports the frequency pairs listed.

*Frequency bands identified as "Limited Availability" = > 12 week lead time; contact DW sales representative for details on specific band availability.

6 GHz

Lower 6 GHz Frequency – Band One

ID	TxLow (GHz)	TxHigh (GHz)
1	5.93532	6.18736
2	5.9452	6.19724
3	5.95508	6.20712
4	5.96497	6.21701
5	5.97485	6.22689
6	5.98473	6.23677
7	5.99462	6.24666
8	6.0045	6.25654
9	6.01438	6.26642
10	6.02427	6.27631
11	6.03415	6.28619
12	6.04403	6.29607

FCC 10 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	5.94100	6.20700
2	5.96900	6.23500
3	5.99700	6.26300
4	6.02500	6.29100

Russia 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	5.94520	6.19724
2	5.97485	6.22689
3	6.00450	6.25654
4	6.03415	6.28619

FCC/IC/ETSI/ITU/AUS/NZ 29.65 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	5.93037	6.18241
2	5.96002	6.21206
3	5.98967	6.24171
4	6.01932	6.27136

IC/AUS/NZ 29.65 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	5.95500	6.21500
2	6.01500	6.27500

60 MHz

Lower 6 GHz Frequency – Band Two

ID	TxLow (GHz)	TxHigh (GHz)
12	6.04403	6.29607
13	6.05392	6.30596
14	6.06380	6.31584
15	6.07368	6.32572
16	6.08357	6.33561
17	6.09345	6.34549
18	6.10333	6.35537
19	6.11322	6.36526
20	6.12310	6.37514
21	6.13298	6.38502
22	6.14287	6.39491
23	6.15275	6.40479

FCC 10 MHz

ID	TxLow (GHz)	TxHigh (GHz)
5	6.05300	6.31900
6	6.08100	6.34700
7	6.10900	6.37500
8	6.13700	6.40300

Russia 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
5	6.06380	6.31584
6	6.09345	6.34549
7	6.12310	6.37514
8	6.15275	6.40479

FCC/IC/ETSI/ITU/AUS/NZ 29.65 MHz

ID	TxLow (GHz)	TxHigh (GHz)
5	6.04897	6.30101
6	6.07862	6.33066
7	6.10827	6.36031
8	6.13792	6.38996

IC/AUS/NZ 29.65 MHz

ID	TxLow (GHz)	TxHigh (GHz)
3	6.07500	6.33500
4	6.13500	6.39500

60 MHz

Upper 6 GHz Frequency – Band One (Limited Availability)

ID	TxLow (GHz)	TxHigh (GHz)
1	6.46000	6.80000
2	6.50000	6.84000
3	6.54000	6.88000
4	6.58000	6.92000

ETSI/ITU 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	6.44000	6.78000
2	6.46000	6.80000
3	6.48000	6.82000
4	6.50000	6.84000
5	6.52000	6.86000
6	6.54000	6.88000
7	6.56000	6.90000
8	6.58000	6.92000

ETSI/ITU 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	6.46000	6.80000
2	6.49000	6.83000
3	6.52000	6.86000
4	6.55000	6.89000
5	6.58000	6.92000

ITU 30 MHz

Upper 6 GHz Frequency – Band Two (Limited Availability)

ID	TxLow (GHz)	TxHigh (GHz)
5	6.62000	6.96000
6	6.66000	7.00000
7	6.70000	7.04000
8	6.74000	7.08000

ETSI/ITU 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	6.60000	6.94000
10	6.62000	6.96000
11	6.64000	6.98000
12	6.66000	7.00000
13	6.68000	7.02000
14	6.70000	7.04000
15	6.72000	7.06000
16	6.74000	7.08000

ETSI/ITU 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
6	6.61000	6.95000
7	6.64000	6.98000
8	6.67000	7.01000
9	6.70000	7.04000
10	6.73000	7.07000

ITU 30 MHz

Upper 6 GHz Frequency – Band Three (Limited Availability)

ID	TxLow (GHz)	TxHigh (GHz)
1	6.54500	6.71500
2	6.55500	6.72500
3	6.56500	6.73500
4	6.58500	6.74500
5	6.59500	6.75500
6	6.60500	6.76500
7	6.61500	6.77500
8	6.62500	6.78500

FCC 10 MHz

Upper 6 GHz Frequency – Band Four (Limited Availability)

ID	TxLow (GHz)	TxHigh (GHz)
9	6.63500	6.79500
10	6.64500	6.80500
11	6.65500	6.81500
12	6.66500	6.82500
13	6.67500	6.83500
14	6.68500	6.84500
15	6.69500	6.85500
16	6.70500	6.86500

FCC 10 MHz

11 GHz

11 GHz Frequency – Band One

ID	TxLow (GHz)	TxHigh (GHz)
1	10.73500	11.22500
2	10.77500	11.26500
3	10.81500	11.30500
4	10.85500	11.34500
5	10.89500	11.38500
6	10.93500	11.42500

FCC/IC/ETSI 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.73500	11.26500
2	10.77500	11.30500
3	10.81500	11.34500
4	10.85500	11.38500
5	10.89500	11.42500

NZ/ETSI 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.70500	11.19500
2	10.71500	11.20500
3	10.72500	11.21500
4	10.73500	11.22500
5	10.74500	11.23500
6	10.75500	11.24500
7	10.76500	11.25500
8	10.77500	11.26500
9	10.78500	11.27500
10	10.79500	11.28500
11	10.80500	11.29500
12	10.81500	11.30500
13	10.82500	11.31500
14	10.83500	11.32500
15	10.84500	11.33500
16	10.85500	11.34500
17	10.86500	11.35500
18	10.87500	11.36500
19	10.88500	11.37500
20	10.89500	11.38500
21	10.90500	11.39500
22	10.91500	11.40500
23	10.92500	11.41500
24	10.93500	11.42500
25	10.94500	11.43500

FCC/IC 10 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.72000	11.21000
2	10.74000	11.23000
3	10.76000	11.25000
4	10.78000	11.27000
5	10.80000	11.29000
6	10.82000	11.31000
7	10.84000	11.33000
8	10.86000	11.35000
9	10.88000	11.37000
10	10.90000	11.39000
11	10.92000	11.41000
12	10.94000	11.43000

IC 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.72500	11.21500
2	10.75500	11.24500
3	10.78500	11.27500
4	10.81500	11.30500
5	10.84500	11.33500
6	10.87500	11.36500
7	10.90500	11.39500
8	10.93500	11.42500

IC 30 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.71500	11.21500
1	10.75500	11.24500
2	10.79500	11.28500
3	10.83500	11.32500
4	10.87500	11.36500
5	10.91500	11.40500

FCC 30 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	10.71500	11.24500
2	10.75500	11.28500
3	10.79500	11.32500
4	10.83500	11.36500
5	10.87500	11.40500
6	10.91500	11.44500

ITU/Brazil/Sweden 40

*500 MHz

11 GHz Frequency – Band Two

ID	TxLow (GHz)	TxHigh (GHz)
13	10.96000	11.45000
14	10.98000	11.47000
15	11.00000	11.49000
16	11.02000	11.51000
17	11.04000	11.53000
18	11.06000	11.55000
19	11.08000	11.57000
20	11.10000	11.59000
21	11.12000	11.61000
22	11.14000	11.63000
23	11.16000	11.65000
24	11.18000	11.67000

IC 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
7	10.95500	11.44500
8	10.99500	11.48500
9	11.03500	11.52500
10	11.07500	11.56500
11	11.11500	11.60500
12	11.15500	11.64500
13	11.18500	11.68500

FCC 30 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	10.96500	11.45500
10	10.99500	11.48500
11	11.02500	11.51500
12	11.05500	11.54500
13	11.08500	11.57500
14	11.11500	11.60500
15	11.14500	11.63500
16	11.17500	11.66500

IC 30 MHz

ID	TxLow (GHz)	TxHigh (GHz)
7	10.95500	11.48500
8	10.99500	11.52500
9	11.03500	11.56500
10	11.07500	11.60500
11	11.11500	11.64500
12	11.15500	11.68500

**ITU/Brazil/Sweden
40 MHz**

ID	TxLow (GHz)	TxHigh (GHz)
7	10.97500	11.46500
8	11.01500	11.50500
9	11.05500	11.54500
10	11.09500	11.58500
11	11.13500	11.62500
12	11.17500	11.66500

**FCC/IC/ETSI/India/AUS
40 MHz**

ID	TxLow (GHz)	TxHigh (GHz)
6	10.93500	11.46500
7	10.97500	11.50500
8	11.01500	11.54500
9	11.05500	11.58500
10	11.09500	11.62500
11	11.13500	11.66500

New Zealand 40 MHz

13 GHz

13 GHz Frequency – Band One

ID	TxLow (GHz)	TxHigh (GHz)
1	12.75450	13.02050
2	12.76150	13.02750
3	12.76850	13.03450
4	12.77550	13.04150
5	12.78250	13.04850
6	12.78950	13.05550
7	12.79650	13.06250
8	12.80350	13.06950
9	12.81050	13.07650
10	12.81750	13.08350
11	12.82450	13.09050
12	12.83150	13.09750
13	12.83850	13.10450
14	12.84550	13.11150
15	12.85250	13.11850
16	12.85950	13.12550

ETSI 7 MHz

Limited Availability

ID	TxLow (GHz)	TxHigh (GHz)
1	12.75800	13.02400
2	12.77200	13.03800
3	12.78600	13.05200
4	12.80000	13.06600
5	12.81400	13.08000
6	12.82800	13.09400
7	12.84200	13.10800
8	12.85600	13.12200

ETSI 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	12.77900	13.04500
2	12.80700	13.07300
3	12.83500	13.10100

Spain 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	12.76500	13.03100
2	12.79300	13.05900
3	12.82100	13.08700
4	12.84900	13.11500

ETSI 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	12.77900	13.04500
2	12.79300	13.05900
3	12.80700	13.07300
4	12.82100	13.08700
5	12.83500	13.10100

Spain 56 MHz

13 GHz Frequency – Band Two

ID	TxLow (GHz)	TxHigh (GHz)
17	12.86650	13.13250
18	12.87350	13.13950
19	12.88050	13.14650
20	12.88750	13.15350
21	12.89450	13.16050
22	12.90150	13.16750
23	12.90850	13.17450
24	12.91550	13.18150
25	12.92250	13.18850
26	12.92950	13.19550
27	12.93650	13.20250
28	12.94350	13.20950
29	12.95050	13.21650
30	12.95750	13.22350
31	12.96450	13.23050
32	12.97150	13.23750

ETSI 7 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	12.87000	13.13600
10	12.88400	13.15000
11	12.89800	13.16400
12	12.91200	13.17800
13	12.92600	13.19200
14	12.94000	13.20600
15	12.95400	13.22000
16	12.96800	13.23400

ETSI 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
5	12.87700	13.14300
6	12.90500	13.17100
7	12.93300	13.19900
8	12.96100	13.22700

ETSI 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	12.89100	13.15300

Costa Rica 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	12.87350	13.13550

Costa Rica 21 MHz

ID	TxLow (GHz)	TxHigh (GHz)
4	12.89100	13.15700
5	12.91900	13.18500
6	12.94700	13.21300

Spain 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
6	12.89100	13.15700
7	12.90500	13.17100
8	12.91900	13.18500
9	12.93300	13.19900
10	12.94700	13.21300

Spain 56 MHz

18 GHz

18 GHz Frequency – Band One

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1		17.7450	19.3050
2		17.7550	19.3150
3		17.7650	19.3250
4		17.7750	19.3350
5		17.7850	19.3450
6		17.7950	19.3550
7	N1	17.8050	19.3650
8	N2	17.8150	19.3750
9	N3	17.8250	19.3850
10	N4	17.8350	19.3950
11	N5	17.8450	19.4050
12	N6	17.8550	19.4150
13	N7	17.8650	19.4250
14	N8	17.8750	19.4350
15	N9	17.8850	19.4450
16	N10	17.8950	19.4550
17	N11	17.9050	19.4650
18	N12	17.9150	19.4750
19	N13	17.9250	19.4850
20	N14	17.9350	19.4950
21	N15	17.9450	19.5050
22	N16	17.9550	19.5150
23	N17	17.9650	19.5250
24	N18	17.9750	19.5350
25	N19	17.9850	19.5450
26	N20	17.9950	19.5550
27	N21	18.0050	19.5650
28	N22	18.0150	19.5750
29	N23	18.0250	19.5850
30	N24	18.0350	19.5950
31	N25	18.0450	19.6050
32	N26	18.0550	19.6150
33	N27	18.0650	19.6250
34	N28	18.0750	19.6350
35	N29	18.0850	19.6450
36	N30	18.0950	19.6550
37	N31	18.1050	19.6650
38	N32	18.1150	19.6750
39	N33	18.1250	19.6850
40	N34	18.1350	19.6950

FCC/IC 10 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1		17.7550	19.3150
2		17.7850	19.3450
3	G1	17.8150	19.3750
4	G2	17.8450	19.4050
5	G3	17.8750	19.4350
6	G4	17.9050	19.4650
7	G5	17.9350	19.4950
8	G6	17.9650	19.5250
9	G7	17.9950	19.5550
10	G8	18.0250	19.5850
11	G9	18.0550	19.6150
12	G10	18.0850	19.6450
13	G11	18.1150	19.6750

FCC/IC 30 MHz (HP Only)

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1		17.7200	19.2800
2		17.7600	19.3200
3		17.8000	19.3600
4	D1	17.8400	19.4000
5	D2	17.8800	19.4400
6	D3	17.9200	19.4800
7	D4	17.9600	19.5200
8	D5	18.0000	19.5600
9	D6	18.0400	19.6000
10	D7	18.0800	19.6400
11	D8	18.1200	19.6800

FCC/IC 40 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1		17.7650	19.3250
2		17.8150	19.3750
3	A1	17.8650	19.4250
4	A2	17.9150	19.4750
5	A3	17.9650	19.5250
6	A4	18.0150	19.5750
7	A5	18.0650	19.6250
8	A6	18.1150	19.6750

FCC/IC 50 MHz

ID	TxLow (GHz)	TxHigh (GHz)
B1	18.1650	19.3250
B2	18.2150	19.3750

IC 50 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7138	19.2738
2	17.7275	19.2875
3	17.7413	19.3013
4	17.7550	19.3150
5	17.7688	19.3288
6	17.7825	19.3425
7	17.7963	19.3563
8	17.8100	19.3700
9	17.8238	19.3838
10	17.8375	19.3975
11	17.8513	19.4113
12	17.8650	19.4250
13	17.8788	19.4388
14	17.8925	19.4525
15	17.9063	19.4663
16	17.9200	19.4800
17	17.9338	19.4938
18	17.9475	19.5075
19	17.9613	19.5213
20	17.9750	19.5350
21	17.9888	19.5488
22	18.0025	19.5625
23	18.0163	19.5763
24	18.0300	19.5900
25	18.0438	19.6038
26	18.0575	19.6175
27	18.0713	19.6313
28	18.0850	19.6450
29	18.0988	19.6588
30	18.1125	19.6725
31	18.1263	19.6863

Brazil 13.75 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7275	19.2875
2	17.7550	19.3150
3	17.7825	19.3425
4	17.8100	19.3700
5	17.8375	19.3975
6	17.8650	19.4250
7	17.8925	19.4525
8	17.9200	19.4800
9	17.9475	19.5075
10	17.9750	19.5350
11	18.0025	19.5625
12	18.0300	19.5900
13	18.0575	19.6175
14	18.0850	19.6450
15	18.1125	19.6725

Brazil 27.5 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7275	19.2875
2	17.7825	19.3425
3	17.8375	19.3975
4	17.8925	19.4525
5	17.9475	19.5075
6	18.0025	19.5625
7	18.0575	19.6175
8	18.1125	19.6725

Brazil 55 MHz

18 GHz Frequency – Band Two

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7100	18.7200
2	17.7170	18.7270
3	17.7240	18.7340
4	17.7310	18.7410
5	17.7380	18.7480
6	17.7450	18.7550
7	17.7520	18.7620
8	17.7590	18.7690
9	17.7660	18.7760
10	17.7730	18.7830
11	17.7800	18.7900
12	17.7870	18.7970
13	17.7940	18.8040
14	17.8010	18.8110
15	17.8080	18.8180
16	17.8150	18.8250
17	17.8220	18.8320
18	17.8290	18.8390
19	17.8360	18.8460
20	17.8430	18.8530
21	17.8500	18.8600
22	17.8570	18.8670
23	17.8640	18.8740
24	17.8710	18.8810
25	17.8780	18.8880
26	17.8850	18.8950
27	17.8920	18.9020
28	17.8990	18.9090
29	17.9060	18.9160
30	17.9130	18.9230
31	17.9200	18.9300
32	17.9270	18.9370
33	17.9340	18.9440

ETSI/ITU/France/Italy 7 MHz

(SP Only)

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7344	18.7444
2	17.7481	18.7581
3	17.7619	18.7719
4	17.7756	18.7856
5	17.7894	18.7994
6	17.8031	18.8131
7	17.8169	18.8269
8	17.8306	18.8406
9	17.8444	18.8544
10	17.8581	18.8681
11	17.8719	18.8819
12	17.8856	18.8956
13	17.8994	18.9094
14	17.9131	18.9231
15	17.9269	18.9369
16	17.9406	18.9506
17	17.9544	18.9644
18	17.9681	18.9781
19	17.9819	18.9919
20	17.9956	19.0056
21	18.0094	19.0194
22	18.0231	19.0331
23	18.0369	19.0469
24	18.0506	19.0606
25	18.0644	19.0744
26	18.0781	19.0881
27	18.0919	19.1019
28	18.1056	19.1156
29	18.1194	19.1294
30	18.1331	19.1431
31	18.1469	19.1569
32	18.1606	19.1706
33	18.1744	19.1844
34	18.1881	19.1981
35	18.2019	19.2119
36	18.2156	19.2256

France 13.75 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7413	18.7513
2	17.7688	18.7788
3	17.7963	18.8063
4	17.8238	18.8338
5	17.8513	18.8613
6	17.8788	18.8888
7	17.9063	18.9163
8	17.9338	18.9438
9	17.9613	18.9713
10	17.9888	18.9988
11	18.0163	19.0263
12	18.0438	19.0538
13	18.0713	19.0813
14	18.0988	19.1088
15	18.1263	19.1363
16	18.1538	19.1638
17	18.1813	19.1913
18	18.2088	19.2188

France 27.5 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7550	18.7650
2	17.8100	18.8200
3	17.8650	18.8750
4	17.9200	18.9300
5	17.9750	18.9850
6	18.0300	19.0400
7	18.0850	19.0950
8	18.1400	19.1500
9	18.1950	19.2050

France 55 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7138	18.7238
2	17.7275	18.7375
3	17.7413	18.7513
4	17.7550	18.7650
5	17.7688	18.7788
6	17.7825	18.7925
7	17.7963	18.8063
8	17.8100	18.8200
9	17.8238	18.8338
10	17.8375	18.8475
11	17.8513	18.8613
12	17.8650	18.8750
13	17.8788	18.8888
14	17.8925	18.9025
15	17.9063	18.9163
16	17.9200	18.9300
17	17.9338	18.9438
18	17.9475	18.9575
19	17.9613	18.9713
20	17.9750	18.9850
21	17.9888	18.9988
22	18.0025	19.0125
23	18.0163	19.0263
24	18.0300	19.0400
25	18.0438	19.0538
26	18.0575	19.0675
27	18.0713	19.0813
28	18.0850	19.0950
29	18.0988	19.1088
30	18.1125	19.1225
31	18.1263	19.1363
32	18.1400	19.1500
33	18.1538	19.1638
34	18.1675	19.1775
35	18.1813	19.1913
36	18.1950	19.2050
37	18.2088	19.2188

ETSI/ITU 13.75 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7550	18.7650
2	17.8100	18.8200
3	17.8650	18.8750
4	17.9200	18.9300
5	17.9750	18.9850
6	18.0300	19.0400
7	18.0850	19.0950
8	18.1400	19.1500
9	18.1950	19.2050

ETSI/ITU 55 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	17.7275	18.7375
2	17.7550	18.7650
3	17.7825	18.7925
4	17.8100	18.8200
5	17.8375	18.8475
6	17.8650	18.8750
7	17.8925	18.9025
8	17.9200	18.9300
9	17.9475	18.9575
10	17.9750	18.9850
11	18.0025	19.0125
12	18.0300	19.0400
13	18.0575	19.0675
14	18.0850	19.0950
15	18.1125	19.1225
16	18.1400	19.1500
17	18.1675	19.1775
18	18.1950	19.2050

ETSI/ITU/Venezuela**Singapore/Malaysia/Thailand 27.5 MHz**

18 GHz Frequency – Band Three

ID	TxLow (GHz)	TxHigh (GHz)
33	18.1744	19.1844
34	18.1881	19.1981
35	18.2019	19.2119
36	18.2156	19.2256
37	18.2294	19.2394
38	18.2431	19.2531
39	18.2569	19.2669
40	18.2706	19.2806
41	18.2844	19.2944
42	18.2981	19.3081
43	18.3119	19.3219
44	18.3256	19.3356
45	18.3394	19.3494
46	18.3531	19.3631
47	18.3669	19.3769
48	18.3806	19.3906
49	18.3944	19.4044
50	18.4081	19.4181
51	18.4219	19.4319
52	18.4356	19.4456
53	18.4494	19.4594
54	18.4631	19.4731
55	18.4769	19.4869
56	18.4906	19.5006
57	18.5044	19.5144
58	18.5181	19.5281
59	18.5319	19.5419
60	18.5456	19.5556
61	18.5594	19.5694
62	18.5731	19.5831
63	18.5869	19.5969
64	18.6006	19.6106
65	18.6144	19.6244
66	18.6281	19.6381
67	18.6419	19.6519
68	18.6556	19.6656
69	18.6694	19.6794
70	18.6831	19.6931

France 13.75 MHz

ID	TxLow (GHz)	TxHigh (GHz)
17	18.1813	19.1913
18	18.2088	19.2188
19	18.2363	19.2463
20	18.2638	19.2738
21	18.2913	19.3013
22	18.3188	19.3288
23	18.3463	19.3563
24	18.3738	19.3838
25	18.4013	19.4113
26	18.4288	19.4388
27	18.4563	19.4663
28	18.4838	19.4938
29	18.5113	19.5213
30	18.5388	19.5488
31	18.5663	19.5763
32	18.5938	19.6038
33	18.6213	19.6313
34	18.6488	19.6588

France 27.5 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	18.1950	19.2050
10	18.2500	19.2600
11	18.3050	19.3150
12	18.3600	19.3700
13	18.4150	19.4250
14	18.4700	19.4800
15	18.5250	19.5350
16	18.5800	19.5900
17	18.6350	19.6450

France 55 MHz

ETSI ITU	AUS	TxLow (GHz)	TxHigh (GHz)
35		18.1813	19.1913
36		18.1950	19.2050
37		18.2088	19.2188
38		18.2225	19.2325
39		18.2363	19.2463
40		18.2500	19.2600
41		18.2638	19.2738
42		18.2775	19.2875
43		18.2913	19.3013
44	1	18.3050	19.3150
45	2	18.3188	19.3288
46	3	18.3325	19.3425
47	4	18.3463	19.3563
48	5	18.3600	19.3700
49	6	18.3738	19.3838
50	7	18.3875	19.3975
51	8	18.4013	19.4113
52	9	18.4150	19.4250
53	10	18.4288	19.4388
54	11	18.4425	19.4525
55	12	18.4563	19.4663
56	13	18.4700	19.4800
57	14	18.4838	19.4938
58	15	18.4975	19.5075
59	16	18.5113	19.5213
60	17	18.5250	19.5350
61	18	18.5388	19.5488
62	19	18.5525	19.5625
63	20	18.5663	19.5763
64		18.5800	19.5900
65		18.5938	19.6038
66		18.6075	19.6175
67		18.6213	19.6313
68		18.6350	19.6450
69		18.6488	19.6588
70		18.6625	19.6725

ETSI/ITU/AUS 13.75 MHz

ETSI ITU	AUS	TxLow (GHz)	TxHigh (GHz)
18		18.1950	19.2050
19		18.2225	19.2325
20		18.2500	19.2600
21		18.2775	19.2875
22	1	18.3050	19.3150
23	2	18.3325	19.3425
24	3	18.3600	19.3700
25	4	18.3875	19.3975
26	5	18.4150	19.4250
27	6	18.4425	19.4525
28	7	18.4700	19.4800
29	8	18.4975	19.5075
30	9	18.5250	19.5350
31	10	18.5525	19.5625
32		18.5800	19.5900
33		18.6075	19.6175
34		18.6350	19.6450
35		18.6625	19.6725

ETSI/ITU/AUS 27.5 MHz

ETSI ITU	AUS	TxLow (GHz)	TxHigh (GHz)
9		18.1950	19.2050
10		18.2500	19.2600
11		18.3050	19.3150
12	1	18.3600	19.3700
13	2	18.4150	19.4250
14	3	18.4700	19.4800
15	4	18.5250	19.5350
16	5	18.5800	19.5900
17		18.6350	19.6450

ETSI/ITU/AUS 55 MHz

18 GHz Frequency – Band Four (Limited Availability)

ID	TxLow (GHz)	TxHigh (GHz)
1	18.6100	18.9500
2	18.6400	18.9800
3	18.6700	19.0100
4	18.7000	19.0400
5	18.7300	19.0700

MEX 28 MHz**18 GHz Frequency – Band Five (Limited Availability)**

ID	TxLow (GHz)	TxHigh (GHz)
6	18.7600	19.1000
7	18.7900	19.1300
8	18.8200	19.1600
9	18.8500	19.1900
10	18.8800	19.2200

MEX 28 MHz

23 GHz

23 GHz Frequency – Band One

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
1	21.22750	22.45950	28	21.41650	22.64850
2	21.23450	22.46650	29	21.42350	22.65550
3	21.24150	22.47350	30	21.43050	22.66250
4	21.24850	22.48050	31	21.43750	22.66950
5	21.25550	22.48750	32	21.44450	22.67650
6	21.26250	22.49450	33	21.45150	22.68350
7	21.26950	22.50150	34	21.45850	22.69050
8	21.27650	22.50850	35	21.46550	22.69750
9	21.28350	22.51550	36	21.47250	22.70450
10	21.29050	22.52250	37	21.47950	22.71150
11	21.29750	22.52950	38	21.48650	22.71850
12	21.30450	22.53650	39	21.49350	22.72550
13	21.31150	22.54350	40	21.50050	22.73250
14	21.31850	22.55050	41	21.50750	22.73950
15	21.32550	22.55750	42	21.51450	22.74650
16	21.33250	22.56450	43	21.52150	22.75350
17	21.33950	22.57150	44	21.52850	22.76050
18	21.34650	22.57850	45	21.53550	22.76750
19	21.35350	22.58550	46	21.54250	22.77450
20	21.36050	22.59250	47	21.54950	22.78150
21	21.36750	22.59950	48	21.55650	22.78850
22	21.37450	22.60650	49	21.56350	22.79550
23	21.38150	22.61350	50	21.57050	22.80250
24	21.38850	22.62050	51	21.57750	22.80950
25	21.39550	22.62750	52	21.58450	22.81650
26	21.40250	22.63450	53	21.59150	22.82350
27	21.40950	22.64150	54	21.59850	22.83050

ITU/Venezuela/NZ 7 MHz

Limited Availability

ID	TxLow (GHz)	TxHigh (GHz)
1	21.23100	22.46300
2	21.24500	22.47700
3	21.25900	22.49100
4	21.27300	22.50500
5	21.28700	22.51900
6	21.30100	22.53300
7	21.31500	22.54700
8	21.32900	22.56100
9	21.34300	22.57500
10	21.35700	22.58900
11	21.37100	22.60300
12	21.38500	22.61700
13	21.39900	22.63100
14	21.41300	22.64500
15	21.42700	22.65900
16	21.44100	22.67300
17	21.45500	22.68700
18	21.46900	22.70100
19	21.48300	22.71500
20	21.49700	22.72900
21	21.51100	22.74300
22	21.52500	22.75700
23	21.53900	22.77100
24	21.55300	22.78500
25	21.56700	22.79900
26	21.58100	22.81300
27	21.59500	22.82700

ITU/Venezuela/NZ 14 MHz

ID	VEN	TxLow (GHz)	TxHigh (GHz)
1	2	21.23800	22.47000
2	3	21.26600	22.49800
3	4	21.29400	22.52600
4	5	21.32200	22.55400
5	6	21.35000	22.58200
6	7	21.37800	22.61000
7	8	21.40600	22.63800
8	9	21.43400	22.66600
9	10	21.46200	22.69400
10	11	21.49000	22.72200
11	12	21.51800	22.75000
12	13	21.54600	22.77800
13	14	21.57400	22.80600
14	15	21.60200	22.83400

ITU/Venezuela/NZ China/India/Singapore
Argentina/Malaysia/Thailand
28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	21.25200	22.48400
2	21.30800	22.54000
3	21.36400	22.59600
4	21.42000	22.65200
5	21.47600	22.70800
6	21.53200	22.76400
7	21.58800	22.82000

ITU/ Venezuela/NZ 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
1	21.23100	22.46300	29	21.42700	22.65900
2	21.23800	22.47000	30	21.43400	22.66600
3	21.24500	22.47700	31	21.44100	22.67300
4	21.25200	22.48400	32	21.44800	22.68000
5	21.25900	22.49100	33	21.45500	22.68700
6	21.26600	22.49800	34	21.46200	22.69400
7	21.27300	22.50500	35	21.46900	22.70100
8	21.28000	22.51200	36	21.47600	22.70800
9	21.28700	22.51900	37	21.48300	22.71500
10	21.29400	22.52600	38	21.49000	22.72200
11	21.30100	22.53300	39	21.49700	22.72900
12	21.30800	22.54000	40	21.50400	22.73600
13	21.31500	22.54700	41	21.51100	22.74300
14	21.32200	22.55400	42	21.51800	22.75000
15	21.32900	22.56100	43	21.52500	22.75700
16	21.33600	22.56800	44	21.53200	22.76400
17	21.34300	22.57500	45	21.53900	22.77100
18	21.35000	22.58200	46	21.54600	22.77800
19	21.35700	22.58900	47	21.55300	22.78500
20	21.36400	22.59600	48	21.56000	22.79200
21	21.37100	22.60300	49	21.56700	22.79900
22	21.37800	22.61000	50	21.57400	22.80600
23	21.38500	22.61700	51	21.58100	22.81300
24	21.39200	22.62400	52	21.58800	22.82000
25	21.39900	22.63100	53	21.59500	22.82700
26	21.40600	22.63800	54	21.60200	22.83400
27	21.41300	22.64500	55	21.60900	22.84100
28	21.42000	22.65200	56	21.61600	22.84800

MEX 7 MHz*Limited Availability*

ID	TxLow (GHz)	TxHigh (GHz)
1	21.24150	22.47350
2	21.26950	22.50150
3	21.29750	22.52950
4	21.32550	22.55750
5	21.35350	22.58550
6	21.38150	22.61350
7	21.40950	22.64150
8	21.43750	22.66950
9	21.46550	22.69750
10	21.49350	22.72550
11	21.52150	22.75350
12	21.54950	22.78150
13	21.57750	22.80950
14	21.60550	22.83750

ID	TxLow (GHz)	TxHigh (GHz)
1	21.23450	22.46650
2	21.24850	22.48050
3	21.26250	22.49450
4	21.27650	22.50850
5	21.29050	22.52250
6	21.30450	22.53650
7	21.31850	22.55050
8	21.33250	22.56450
9	21.34650	22.57850
10	21.36050	22.59250
11	21.37450	22.60650
12	21.38850	22.62050
13	21.40250	22.63450
14	21.41650	22.64850
15	21.43050	22.66250
16	21.44450	22.67650
17	21.45850	22.69050
18	21.47250	22.70450
19	21.48650	22.71850
20	21.50050	22.73250
21	21.51450	22.74650
22	21.52850	22.76050
23	21.54250	22.77450
24	21.55650	22.78850
25	21.57050	22.80250
26	21.58450	22.81650
27	21.59850	22.83050
28	21.61250	22.84450

MEX 14 MHz**MEX 28 MHz**

ID	TxLow (GHz)	TxHigh (GHz)
1	21.22000	22.42000
2	21.27000	22.47000
3	21.32000	22.52000
4	21.37000	22.57000
5	21.42000	22.62000
6	21.47000	22.67000
7	21.52000	22.72000
8	21.57000	22.77000

FCC 40 MHz

ID	Brazil	TxLow (GHz)	TxHigh (GHz)
1	1	21.22500	22.42500
2	2	21.27500	22.47500
3	3	21.32500	22.52500
4	4	21.37500	22.57500
5	5	21.42500	22.62500
6	6	21.47500	22.67500
7	7	21.52500	22.72500
8		21.57500	22.77500

FCC/Brazil 50 MHz

23 GHz Frequency – Band Two

ID	TxLow (GHz)	TxHigh (GHz)
60	21.80500	23.00500
59	21.81500	23.01500
58	21.82500	23.02500
57	21.83500	23.03500
56	21.84500	23.04500
55	21.85500	23.05500
54	21.86500	23.06500
53	21.87500	23.07500
52	21.88500	23.08500
51	21.89500	23.09500
50	21.90500	23.10500
49	21.91500	23.11500
48	21.92500	23.12500
47	21.93500	23.13500
46	21.94500	23.14500
45	21.95500	23.15500
44	21.96500	23.16500
43	21.97500	23.17500
42	21.98500	23.18500
41	21.99500	23.19500
40	22.00500	23.20500
39	22.01500	23.21500
38	22.02500	23.22500
37	22.03500	23.23500
36	22.04500	23.24500
35	22.05500	23.25500
34	22.06500	23.26500
33	22.07500	23.27500
32	22.08500	23.28500
31	22.09500	23.29500
30	22.10500	23.30500
29	22.11500	23.31500

IC 10 MHz

FCC	IC MEX	AUS	TxLow (GHz)	TxHigh (GHz)
9			21.62500	22.82500
10		1	21.67500	22.87500
11		2	21.72500	22.92500
12		3	21.77500	22.97500
13	A1	4	21.82500	23.02500
14	A2	5	21.87500	23.07500
15	A3	6	21.92500	23.12500
16	A4	7	21.97500	23.17500
17	A5		22.02500	23.22500
18	A6		22.07500	23.27500

FCC/IC/MEX/AUS 50 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	21.82000	23.02000
2	21.86000	23.06000
3	21.90000	23.10000
4	21.94000	23.14000
5	21.98000	23.18000
6	22.02000	23.22000
7	22.06000	23.26000
8	22.10000	23.30000

IC 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
30	21.81000	23.01000
29	21.83000	23.03000
28	21.85000	23.05000
27	21.87000	23.07000
26	21.89000	23.09000
25	21.91000	23.11000
24	21.93000	23.13000
23	21.95000	23.15000
22	21.97000	23.17000
21	21.99000	23.19000
20	22.01000	23.21000
19	22.03000	23.23000
18	22.05000	23.25000
17	22.07000	23.27000
16	22.09000	23.29000
15	22.11000	23.31000

IC 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	21.62000	22.82000
10	21.67000	22.87000
11	21.72000	22.92000
12	21.77000	22.97000
13	21.82000	23.02000
14	21.87000	23.07000
15	21.92000	23.12000
16	21.97000	23.17000
17	22.02000	23.22000
18	22.07000	23.27000

FCC 40 MHz

ID	TxLow (GHz)	TxHigh (GHz)
57	21.62300	22.85500
58	21.63000	22.86200
59	21.63700	22.86900
60	21.64400	22.87600

MEX 7 MHz

Limited Availability

ID	TxLow (GHz)	TxHigh (GHz)
29	21.62650	22.85850
30	21.64050	22.87250

MEX 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
15	21.63350	22.86550

MEX 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
55	21.60550	22.83750	88	21.83650	23.06850
56	21.61250	22.84450	89	21.84350	23.07550
57	21.61950	22.85150	90	21.85050	23.08250
58	21.62650	22.85850	91	21.85750	23.08950
59	21.63350	22.86550	92	21.86450	23.09650
60	21.64050	22.87250	93	21.87150	23.10350
61	21.64750	22.87950	94	21.87850	23.11050
62	21.65450	22.88650	95	21.88550	23.11750
63	21.66150	22.89350	96	21.89250	23.12450
64	21.66850	22.90050	97	21.89950	23.13150
65	21.67550	22.90750	98	21.90650	23.13850
66	21.68250	22.91450	99	21.91350	23.14550
67	21.68950	22.92150	100	21.92050	23.15250
68	21.69650	22.92850	101	21.92750	23.15950
69	21.70350	22.93550	102	21.93450	23.16650
70	21.71050	22.94250	103	21.94150	23.17350
71	21.71750	22.94950	104	21.94850	23.18050
72	21.72450	22.95650	105	21.95550	23.18750
73	21.73150	22.96350	106	21.96250	23.19450
74	21.73850	22.97050	107	21.96950	23.20150
75	21.74550	22.97750	108	21.97650	23.20850
76	21.75250	22.98450	109	21.98350	23.21550
77	21.75950	22.99150	110	21.99050	23.22250
78	21.76650	22.99850	111	21.99750	23.22950
79	21.77350	23.00550	112	22.00450	23.23650
80	21.78050	23.01250	113	22.01150	23.24350
81	21.78750	23.01950	114	22.01850	23.25050
82	21.79450	23.02650	115	22.02550	23.25750
83	21.80150	23.03350	116	22.03250	23.26450
84	21.80850	23.04050	117	22.03950	23.27150
85	21.81550	23.04750	118	22.04650	23.27850
86	21.82250	23.05450	119	22.05350	23.28550
87	21.82950	23.06150	120	22.06050	23.29250

ITU/NZ/Venezuela 7 MHz *Limited Availability*

ITU	AUS	TxLow (GHz)	TxHigh (GHz)
28		21.60900	22.84100
29		21.62300	22.85500
30		21.63700	22.86900
31		21.65100	22.88300
32		21.66500	22.89700
33		21.67900	22.91100
34		21.69300	22.92500
35		21.70700	22.93900
36		21.72100	22.95300
37		21.73500	22.96700
38		21.74900	22.98100
39		21.76300	22.99500
40		21.77700	23.00900
41		21.79100	23.02300
42		21.80500	23.03700
43		21.81900	23.05100
44		21.83300	23.06500
45		21.84700	23.07900
46		21.86100	23.09300
47		21.87500	23.10700
48		21.88900	23.12100
49		21.90300	23.13500
50		21.91700	23.14900
51		21.93100	23.16300
52		21.94500	23.17700
53		21.95900	23.19100
54		21.97300	23.20500
55		21.98700	23.21900
56		22.00100	23.23300
57	1	22.01500	23.24700
58	2	22.02900	23.26100
59	3	22.04300	23.27500
60	4	22.05700	23.28900

ITU/AUS/NZ/Venezuela 14 MHz

ITU	AUS	TxLow (GHz)	TxHigh (GHz)
15		21.63000	22.86200
16		21.65800	22.89000
17		21.68600	22.91800
18		21.71400	22.94600
19		21.74200	22.97400
20		21.77000	23.00200
21		21.79800	23.03000
22		21.82600	23.05800
23		21.85400	23.08600
24		21.88200	23.11400
25		21.91000	23.14200
26		21.93800	23.17000
27		21.96600	23.19800
28		21.99400	23.22600
29	1	22.02200	23.25400
30	2	22.05000	23.28200

ITU/AUS/NZ/Venezuela 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
8	21.64400	22.87600
9	21.70000	22.93200
10	21.75600	22.98800
11	21.81200	23.04400
12	21.86800	23.10000
13	21.92400	23.15600
14	21.98000	23.21200
15	22.03600	23.26800

ITU/NZ/Venezuela 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.01150	23.01950
2	22.01850	23.02650
3	22.02550	23.03350
4	22.03250	23.04050
5	22.03950	23.04750
6	22.04650	23.05450
7	22.05350	23.06150
8	22.06050	23.06850
9	22.06750	23.07550
10	22.07450	23.08250
11	22.08150	23.08950
12	22.08850	23.09650
13	22.09550	23.10350
14	22.10250	23.11050

ETSI 7 MHz

Limited Availability

ID	TxLow (GHz)	TxHigh (GHz)
1	22.01500	23.02300
2	22.02900	23.03700
3	22.04300	23.05100
4	22.05700	23.06500
5	22.07100	23.07900
6	22.08500	23.09300
7	22.09900	23.10700

ETSI 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.02200	23.03000
2	22.05000	23.05800
3	22.07800	23.08600

ETSI 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.07800	23.08600

ETSI 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.03600	23.04400

UK 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.00625	23.01425
2	22.01325	23.02125
3	22.02025	23.02825
4	22.02725	23.03525
5	22.03425	23.04225
6	22.04125	23.04925
7	22.04825	23.05625
8	22.05525	23.06325
9	22.06225	23.07025
10	22.06925	23.07725
11	22.07625	23.08425
12	22.08325	23.09125
13	22.09025	23.09825
14	22.09725	23.10525

France 7 MHz*Limited Availability*

ID	TxLow (GHz)	TxHigh (GHz)
1	22.00975	23.01775
2	22.02375	23.03175
3	22.03775	23.04575
4	22.05175	23.05975
5	22.06575	23.07375
6	22.07975	23.08775
7	22.09375	23.10175

France 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.01675	23.02475
2	22.04475	23.05275
3	22.07275	23.08075

France 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.03075	23.03875
2	22.08675	23.09475

France 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
1	22.05875	23.06675

Tunisia 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
A2	21.80850	23.04050
A4	21.81550	23.04750
A6	21.82250	23.05450
A8	21.82950	23.06150
A10	21.83650	23.06850
A12	21.84350	23.07550
A14	21.85050	23.08250
A16	21.85750	23.08950
A18	21.86450	23.09650
A20	21.87150	23.10350
A22	21.87850	23.11050
A24	21.88550	23.11750
A26	21.89250	23.12450
A28	21.89950	23.13150
A30	21.90650	23.13850
A32	21.91350	23.14550
A34	21.92050	23.15250
A36	21.92750	23.15950
A38	21.93450	23.16650
A40	21.94150	23.17350
B2	21.95200	23.18400
B4	21.95900	23.19100
B6	21.96600	23.19800
B8	21.97300	23.20500
B10	21.98000	23.21200
B12	21.98700	23.21900
B14	21.99400	23.22600
B16	22.00100	23.23300
B18	22.00800	23.24000
B20	22.01500	23.24700
B22	22.02200	23.25400
B24	22.02900	23.26100
B26	22.03600	23.26800
B28	22.04300	23.27500
B30	22.05000	23.28200
B32	22.05700	23.28900
B34	22.06400	23.29600
B36	22.07100	23.30300

Brazil 7 MHz*Limited Availability*

ID	TxLow (GHz)	TxHigh (GHz)
A5	21.81900	23.05100
A13	21.84700	23.07900
A21	21.87500	23.10700
A29	21.90300	23.13500
A37	21.93100	23.16300
B5	21.96250	23.19450
B13	21.99050	23.22250
B21	22.01850	23.25050
B29	22.04650	23.27850

Brazil 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
A3	21.81200	23.04400
A7	21.82600	23.05800
A11	21.84000	23.07200
A15	21.85400	23.08600
A19	21.86800	23.10000
A23	21.88200	23.11400
A27	21.89600	23.12800
A31	21.91000	23.14200
A35	21.92400	23.15600
A39	21.93800	23.17000
B3	21.95550	23.18750
B7	21.96950	23.20150
B11	21.98350	23.21550
B15	21.99750	23.22950
B19	22.01150	23.24350
B23	22.02550	23.25750
B27	22.03950	23.27150
B31	22.05350	23.28550
B35	22.06750	23.29950

Brazil 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
A12	21.84350	23.07550
A28	21.89950	23.13150
B12	21.98700	23.21900
B28	22.04300	23.27500

Brazil 56 MHz

23 GHz Frequency – Band Three

ID	TxLow (GHz)	TxHigh (GHz)
19	22.12000	23.32000
20	22.17000	23.37000
21	22.22000	23.42000
22	22.27000	23.47000
23	22.32000	23.52000
24	22.37000	23.57000

FCC 40 MHz

FCC	IC	MEX	TxLow (GHz)	TxHigh (GHz)
19	A7	A7	22.12500	23.32500
20	A8	A8	22.17500	23.37500
21	A9	A9	22.22500	23.42500
22	A10	A10	22.27500	23.47500
23	A11		22.32500	23.52500
24	A12		22.37500	23.57500

FCC/IC/MEX 50 MHz

ID	TxLow (GHz)	TxHigh (GHz)
28	22.12500	23.32500
27	22.13500	23.33500
26	22.14500	23.34500
25	22.15500	23.35500
24	22.16500	23.36500
23	22.17500	23.37500
22	22.18500	23.38500
21	22.19500	23.39500
20	22.20500	23.40500
19	22.21500	23.41500
18	22.22500	23.42500
17	22.23500	23.43500
16	22.24500	23.44500
15	22.25500	23.45500
14	22.26500	23.46500
13	22.27500	23.47500
12	22.28500	23.48500
11	22.29500	23.49500
10	22.30500	23.50500
9	22.31500	23.51500
8	22.32500	23.52500
7	22.33500	23.53500
6	22.34500	23.54500
5	22.35500	23.55500
4	22.36500	23.56500
3	22.37500	23.57500
2	22.38500	23.58500
1	22.39500	23.59500

IC 10 MHz

ID	TxLow (GHz)	TxHigh (GHz)
14	22.13000	23.33000
13	22.15000	23.35000
12	22.17000	23.37000
11	22.19000	23.39000
10	22.21000	23.41000
9	22.23000	23.43000
8	22.25000	23.45000
7	22.27000	23.47000
6	22.29000	23.49000
5	22.31000	23.51000
4	22.33000	23.53000
3	22.35000	23.55000
2	22.37000	23.57000
1	22.39000	23.59000

IC 20 MHz

ID	TxLow (GHz)	TxHigh (GHz)
9	22.14000	23.34000
10	22.18000	23.38000
11	22.22000	23.42000
12	22.26000	23.46000
13	22.30000	23.50000
14	22.34000	23.54000
15	22.38000	23.58000

IC 40 MHz

ITU	AUS	NZ	TxLow (GHz)	TxHigh (GHz)
121		G8D9	22.06750	23.29950
122		G8D10	22.07450	23.30650
123		G8D11	22.08150	23.31350
124		G8D12	22.08850	23.32050
125		G8D13	22.09550	23.32750
126		G8D14	22.10250	23.33450
127		G8D15	22.10950	23.34150
128		G8D16	22.11650	23.34850
129	1	G9D1	22.12350	23.35550
130	2	G9D2	22.13050	23.36250
131	3	G9D3	22.13750	23.36950
132	4	G9D4	22.14450	23.37650
133	5	G9D5	22.15150	23.38350
134	6	G9D6	22.15850	23.39050
135	7	G9D7	22.16550	23.39750
136	8	G9D8	22.17250	23.40450
137		G9D9	22.17950	23.41150
138		G9D10	22.18650	23.41850
139		G9D11	22.19350	23.42550
140		G9D12	22.20050	23.43250
141		G9D13	22.20750	23.43950
142		G9D14	22.21450	23.44650
143		G9D15	22.22150	23.45350
144		G9D16	22.22850	23.46050
145			22.23550	23.46750
146			22.24250	23.47450
147			22.24950	23.48150
148			22.25650	23.48850
149			22.26350	23.49550
150			22.27050	23.50250
151			22.27750	23.50950
152			22.28450	23.51650
153			22.29150	23.52350
154			22.29850	23.53050
155			22.30550	23.53750
156			22.31250	23.54450
157			22.31950	23.55150
158			22.32650	23.55850
159			22.33350	23.56550
160			22.34050	23.57250

ITU/AUS/NZ/Venezuela 7 MHz

ITU	AUS	NZ	TxLow (GHz)	TxHigh (GHz)
61	5	G8C5	22.07100	23.30300
62	6	G8C6	22.08500	23.31700
63	7	G8C7	22.09900	23.33100
64	8	G8C8	22.11300	23.34500
65		G9C1	22.12700	23.35900
66		G9C2	22.14100	23.37300
67		G9C3	22.15500	23.38700
68		G9C4	22.16900	23.40100
69		G9C5	22.18300	23.41500
70		G9C6	22.19700	23.42900
71		G9C7	22.21100	23.44300
72		G9C8	22.22500	23.45700
73			22.23900	23.47100
74			22.25300	23.48500
75			22.26700	23.49900
76			22.28100	23.51300
77			22.29500	23.52700
78			22.30900	23.54100
79			22.32300	23.55500
80			22.33700	23.56900

ITU/AUS/NZ/Venezuela 14 MHz

ITU	AUS	NZ	TxLow (GHz)	TxHigh (GHz)
31	3	G8D3	22.07800	23.31000
32	4	G8D4	22.10600	23.33800
33		G9D1	22.13400	23.36600
34		G9D2	22.16200	23.39400
35		G9D3	22.19000	23.42200
36		G9D4	22.21800	23.45000
37		G10D1	22.24600	23.47800
38		G10D2	22.27400	23.50600
39			22.30200	23.53400
40			22.33000	23.56200

ITU/AUS/NZ/Venezuela 28 MHz

ITU	NZ	TxLow (GHz)	TxHigh (GHz)
16	G8D2	22.09200	23.32400
17	G9D1	22.14800	23.38000
18	G9D2	22.20400	23.43600
19	G10D1	22.26000	23.49200
20		22.31600	23.54800

ITU/NZ/ Venezuela 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
9	22.06750	23.07550	47	22.33350	23.34150
10	22.07450	23.08250	48	22.34050	23.34850
11	22.08150	23.08950	49	22.34750	23.35550
12	22.08850	23.09650	50	22.35450	23.36250
13	22.09550	23.10350	51	22.36150	23.36950
14	22.10250	23.11050	52	22.36850	23.37650
15	22.10950	23.11750	53	22.37550	23.38350
16	22.11650	23.12450	54	22.38250	23.39050
17	22.12350	23.13150	55	22.38950	23.39750
18	22.13050	23.13850	56	22.39650	23.40450
19	22.13750	23.14550	57	22.40350	23.41150
20	22.14450	23.15250	58	22.41050	23.41850
21	22.15150	23.15950	59	22.41750	23.42550
22	22.15850	23.16650	60	22.42450	23.43250
23	22.16550	23.17350	61	22.43150	23.43950
24	22.17250	23.18050	62	22.43850	23.44650
25	22.17950	23.18750	63	22.44550	23.45350
26	22.18650	23.19450	64	22.45250	23.46050
27	22.19350	23.20150	65	22.45950	23.46750
28	22.20050	23.20850	66	22.46650	23.47450
29	22.20750	23.21550	67	22.47350	23.48150
30	22.21450	23.22250	68	22.48050	23.48850
31	22.22150	23.22950	69	22.48750	23.49550
32	22.22850	23.23650	70	22.49450	23.50250
33	22.23550	23.24350	71	22.50150	23.50950
34	22.24250	23.25050	72	22.50850	23.51650
35	22.24950	23.25750	73	22.51550	23.52350
36	22.25650	23.26450	74	22.52250	23.53050
37	22.26350	23.27150	75	22.52950	23.53750
38	22.27050	23.27850	76	22.53650	23.54450
39	22.27750	23.28550	77	22.54350	23.55150
40	22.28450	23.29250	78	22.55050	23.55850
41	22.29150	23.29950	79	22.55750	23.56550
42	22.29850	23.30650	80	22.56450	23.57250
43	22.30550	23.31350	81	22.57150	23.57950
44	22.31250	23.32050	82	22.57850	23.58650
45	22.31950	23.32750	83	22.58550	23.59350
46	22.32650	23.33450			

ETSI 7 MHz

ID	TxLow (GHz)	TxHigh (GHz)
5	22.07100	23.07900
6	22.08500	23.09300
7	22.09900	23.10700
8	22.11300	23.12100
9	22.12700	23.13500
10	22.14100	23.14900
11	22.15500	23.16300
12	22.16900	23.17700
13	22.18300	23.19100
14	22.19700	23.20500
15	22.21100	23.21900
16	22.22500	23.23300
17	22.23900	23.24700
18	22.25300	23.26100
19	22.26700	23.27500
20	22.28100	23.28900
21	22.29500	23.30300
22	22.30900	23.31700
23	22.32300	23.33100
24	22.33700	23.34500
25	22.35100	23.35900
26	22.36500	23.37300
27	22.37900	23.38700
28	22.39300	23.40100
29	22.40700	23.41500
30	22.42100	23.42900
31	22.43500	23.44300
32	22.44900	23.45700
33	22.46300	23.47100
34	22.47700	23.48500
35	22.49100	23.49900
36	22.50500	23.51300
37	22.51900	23.52700
38	22.53300	23.54100
39	22.54700	23.55500
40	22.56100	23.56900
41	22.57500	23.58300

ETSI 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
3	22.07800	23.08600
4	22.10600	23.11400
5	22.13400	23.14200
6	22.16200	23.17000
7	22.19000	23.19800
8	22.21800	23.22600
9	22.24600	23.25400
10	22.27400	23.28200
11	22.30200	23.31000
12	22.33000	23.33800
13	22.35800	23.36600
14	22.38600	23.39400
15	22.41400	23.42200
16	22.44200	23.45000
17	22.47000	23.47800
18	22.49800	23.50600
19	22.52600	23.53400
20	22.55400	23.56200

ETSI 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
2	22.13400	23.14200
3	22.19000	23.19800
4	22.24600	23.25400
5	22.30200	23.31000
6	22.35800	23.36600
7	22.41400	23.42200
8	22.47000	23.47800
9	22.52600	23.53400

ETSI 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
2	22.09200	23.10000
3	22.14800	23.15600
4	22.20400	23.21200
5	22.26000	23.26800
6	22.31600	23.32400
7	22.37200	23.38000
8	22.42800	23.43600
9	22.48400	23.49200
10	22.54000	23.54800

UK 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
11	22.07625	23.08425	48	22.33525	23.34325
12	22.08325	23.09125	49	22.34225	23.35025
13	22.09025	23.09825	50	22.34925	23.35725
14	22.09725	23.10525	51	22.35625	23.36425
15	22.10425	23.11225	52	22.36325	23.37125
16	22.11125	23.11925	53	22.37025	23.37825
17	22.11825	23.12625	54	22.37725	23.38525
18	22.12525	23.13325	55	22.38425	23.39225
19	22.13225	23.14025	56	22.39125	23.39925
20	22.13925	23.14725	57	22.39825	23.40625
21	22.14625	23.15425	58	22.40525	23.41325
22	22.15325	23.16125	59	22.41225	23.42025
23	22.16025	23.16825	60	22.41925	23.42725
24	22.16725	23.17525	61	22.42625	23.43425
25	22.17425	23.18225	62	22.43325	23.44125
26	22.18125	23.18925	63	22.44025	23.44825
27	22.18825	23.19625	64	22.44725	23.45525
28	22.19525	23.20325	65	22.45425	23.46225
29	22.20225	23.21025	66	22.46125	23.46925
30	22.20925	23.21725	67	22.46825	23.47625
31	22.21625	23.22425	68	22.47525	23.48325
32	22.22325	23.23125	69	22.48225	23.49025
33	22.23025	23.23825	70	22.48925	23.49725
34	22.23725	23.24525	71	22.49625	23.50425
35	22.24425	23.25225	72	22.50325	23.51125
36	22.25125	23.25925	73	22.51025	23.51825
37	22.25825	23.26625	74	22.51725	23.52525
38	22.26525	23.27325	75	22.52425	23.53225
39	22.27225	23.28025	76	22.53125	23.53925
40	22.27925	23.28725	77	22.53825	23.54625
41	22.28625	23.29425	78	22.54525	23.55325
42	22.29325	23.30125	79	22.55225	23.56025
43	22.30025	23.30825	80	22.55925	23.56725
44	22.30725	23.31525	81	22.56625	23.57425
45	22.31425	23.32225	82	22.57325	23.58125
46	22.32125	23.32925	83	22.58025	23.58825
47	22.32825	23.33625	84	22.58725	23.59525

France 7 MHz

ID	TxLow (GHz)	TxHigh (GHz)
6	22.07975	23.08775
7	22.09375	23.10175
8	22.10775	23.11575
9	22.12175	23.12975
10	22.13575	23.14375
11	22.14975	23.15775
12	22.16375	23.17175
13	22.17775	23.18575
14	22.19175	23.19975
15	22.20575	23.21375
16	22.21975	23.22775
17	22.23375	23.24175
18	22.24775	23.25575
19	22.26175	23.26975
20	22.27575	23.28375
21	22.28975	23.29775
22	22.30375	23.31175
23	22.31775	23.32575
24	22.33175	23.33975
25	22.34575	23.35375
26	22.35975	23.36775
27	22.37375	23.38175
28	22.38775	23.39575
29	22.40175	23.40975
30	22.41575	23.42375
31	22.42975	23.43775
32	22.44375	23.45175
33	22.45775	23.46575
34	22.47175	23.47975
35	22.48575	23.49375
36	22.49975	23.50775
37	22.51375	23.52175
38	22.52775	23.53575
39	22.54175	23.54975
40	22.55575	23.56375
41	22.56975	23.57775
42	22.58375	23.59175

France 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
4	22.10075	23.10875
5	22.12875	23.13675
6	22.15675	23.16475
7	22.18475	23.19275
8	22.21275	23.22075
9	22.24075	23.24875
10	22.26875	23.27675
11	22.29675	23.30475
12	22.32475	23.33275
13	22.35275	23.36075
14	22.38075	23.38875
15	22.40875	23.41675
16	22.43675	23.44475
17	22.46475	23.47275
18	22.49275	23.50075
19	22.52075	23.52875
20	22.54875	23.55675
21	22.57675	23.58475

France 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
3	22.07275	23.08075
4	22.10075	23.10875
5	22.12875	23.13675
6	22.15675	23.16475
7	22.18475	23.19275
8	22.21275	23.22075
9	22.24075	23.24875
10	22.26875	23.27675
11	22.29675	23.30475
12	22.32475	23.33275
13	22.35275	23.36075
14	22.38075	23.38875
15	22.40875	23.41675
16	22.43675	23.44475
17	24.46475	23.47275
18	22.49275	23.50075
19	22.52075	23.52875

France 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
3	22.14275	23.15075
4	22.19875	23.20675
5	22.25475	23.26275
6	22.31075	23.31875
7	22.36675	23.37475
8	22.42275	23.43075
9	22.47875	23.48675
10	22.53475	23.54275

France 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)
2	22.11475	23.12275
3	22.17075	23.17875
4	22.22675	23.23475
5	22.28275	23.29075
6	22.33875	23.34675
7	22.39475	23.40275
8	22.45075	23.45875
9	22.50675	23.51475
10	22.56275	23.57075

Tunisia 56 MHz

ID	TxLow (GHz)	TxHigh (GHz)	ID	TxLow (GHz)	TxHigh (GHz)
B38	22.07800	23.31000	C38	22.22150	23.45350
B40	22.08500	23.31700	D1	22.23200	23.46400
C2	22.09550	23.32750	D3	22.23900	23.47100
C4	22.10250	23.33450	D5	22.24600	23.47800
C6	22.10950	23.34150	D7	22.25300	23.48500
C8	22.11650	23.34850	D9	22.26000	23.49200
C10	22.12350	23.35550	D11	22.26700	23.49900
C12	22.13050	23.36250	D13	22.27400	23.50600
C14	22.13750	23.36950	D15	22.28100	23.51300
C16	22.14450	23.37650	D17	22.28800	23.52000
C18	22.15150	23.38350	D19	22.29500	23.52700
C20	22.15850	23.39050	D21	22.30200	23.53400
C22	22.16550	23.39750	D23	22.30900	23.54100
C24	22.17250	23.40450	D25	22.31600	23.54800
C26	22.17950	23.41150	D27	22.32300	23.55500
C28	22.18650	23.41850	D29	22.33000	23.56200
C30	22.19350	23.42550	D31	22.33700	23.56900
C32	22.20050	23.43250	D33	22.34400	23.57600
C34	22.20750	23.43950	D35	22.35100	23.58300
C36	22.21450	23.44650	D37	22.35800	23.59000

Brazil 7 MHz

ID	TxLow (GHz)	TxHigh (GHz)
B39	22.08150	23.31350
C3	22.09900	23.33100
C7	22.11300	23.34500
C11	22.12700	23.35900
C15	22.14100	23.37300
C19	22.15500	23.38700
C23	22.16900	23.40100
C27	22.18300	23.41500
C31	22.19700	23.42900
C35	22.21100	23.44300
D4	22.24250	23.47450
D8	22.25650	23.48850
D12	22.27050	23.50250
D16	22.28450	23.51650
D20	22.29850	23.53050
D24	22.31250	23.54450
D28	22.32650	23.55850
D32	22.34050	23.57250
D36	22.35450	23.58650

Brazil 14 MHz

ID	TxLow (GHz)	TxHigh (GHz)
B37	22.07450	23.30650
C8	22.11650	23.34850
C16	22.14450	23.37650
C24	22.17250	23.40450
C32	22.20050	23.43250
D7	22.25300	23.48500
D15	22.28100	23.51300
D23	22.30900	23.54100
D31	22.33700	23.56900

Brazil 28 MHz

ID	TxLow (GHz)	TxHigh (GHz)
C12	22.13050	23.36250
C28	22.18650	23.41850
D13	22.27400	23.50600
D29	22.23000	23.56200

Brazil 56 MHz

26 GHz

26 GHz Frequency – ETSI Band A (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
1	24.55250	25.56050
2	24.55950	25.56750
3	24.56650	25.57450
4	24.57350	25.58150
5	24.58050	25.58850
6	24.58750	25.59550
7	24.59450	25.60250
8	24.60150	25.60950
9	24.60850	25.61650
10	24.61550	25.62350
11	24.62250	25.63050
12	24.62950	25.63750
13	24.63650	25.64450
14	24.64350	25.65150
15	24.65050	25.65850
16	24.65750	25.66550
17	24.66450	25.67250
18	24.67150	25.67950
19	24.67850	25.68650
20	24.68550	25.69350

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
21	24.69250	25.70050
22	24.69950	25.70750
23	24.70650	25.71450
24	24.71350	25.72150
25	24.72050	25.72850
26	24.72750	25.73550
27	24.73450	25.74250
28	24.74150	25.74950
29	24.74850	25.75650
30	24.75550	25.76350
31	24.76250	25.77050
32	24.76950	25.77750
33	24.77650	25.78450
34	24.78350	25.79150
35	24.79050	25.79850
36	24.79750	25.80550
37	24.80450	25.81250
38	24.81150	25.81950
39	24.81850	25.82650
40	24.82550	25.83350

ETSI	TxLow (GHz)	TxHigh (GHz)
1	24.55600	25.56400
2	24.57000	25.57800
3	24.58400	25.59200
4	24.59800	25.60600
5	24.61200	25.62000
6	24.62600	25.63400
7	24.64000	25.64800
8	24.65400	25.66200
9	24.66800	25.67600
10	24.68200	25.69000
11	24.69600	25.70400
12	24.71000	25.71800
13	24.72400	25.73200
14	24.73800	25.74600
15	24.75200	25.76000
16	24.76600	25.77400
17	24.78000	25.78800
18	24.79400	25.80200
19	24.80800	25.81600
20	24.82200	25.83000

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
1	24.56300	25.57100
2	24.59100	25.59900
3	24.61900	25.62700
4	24.64700	25.65500
5	24.67500	25.68300
6	24.70300	25.71100
7	24.73100	25.73900
8	24.75900	25.76700
9	24.78700	25.79500
10	24.81600	25.82300

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
1	24.57700	25.58500
2	24.63300	25.64100
3	24.68900	25.69700
4	24.74500	25.75300
5	24.80100	25.80900

ETSI 56 MHz

26 GHz Frequency – ETSI Band B (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
33	24.77650	25.78450
34	24.78350	25.79150
35	24.79050	25.79850
36	24.79750	25.80550
37	24.80450	25.81250
38	24.81150	25.81950
39	24.81850	25.82650
40	24.82550	25.83350
41	24.83250	25.84050
42	24.83950	25.84750
43	24.84650	25.85450
44	24.85350	25.86150
45	24.86050	25.86850
46	24.86750	25.87550
47	24.87450	25.88250
48	24.88150	25.88950
49	24.88850	25.89650
50	24.89550	25.90350
51	24.90250	25.91050
52	24.90950	25.91750

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
53	24.91650	25.92450
54	24.92350	25.93150
55	24.93050	25.93850
56	24.93750	25.94550
57	24.94450	25.95250
58	24.95150	25.95950
59	24.95850	25.96650
60	24.96550	25.97350
61	24.97250	25.98050
62	24.97950	25.98750
63	24.98650	25.99450
64	24.99350	26.00150
65	25.00050	26.00850
66	25.00750	26.01550
67	25.01450	26.02250
68	25.02150	26.02950
69	25.02850	26.03650
70	25.03550	26.04350
71	25.04250	26.05050
72	25.04950	26.05750

ETSI	TxLow (GHz)	TxHigh (GHz)
17	24.78000	25.78800
18	24.79400	25.80200
19	24.80800	25.81600
20	24.82200	25.83000
21	24.83600	25.84400
22	24.85000	25.85800
23	24.86400	25.87200
24	24.87800	25.88600
25	24.89200	25.90000
26	24.90600	25.91400
27	24.92000	25.92800
28	24.93400	25.94200
29	24.94800	25.95600
30	24.96200	25.97000
31	24.97600	25.98400
32	24.99000	25.99800
33	25.00400	26.01200
34	25.01800	26.02600
35	25.03200	26.04000

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
9	24.78700	25.79500
10	24.81500	25.82300
11	24.84300	25.85100
12	24.87100	25.87900
13	24.89900	25.90700
14	24.92700	25.93500
15	24.95500	25.96300
16	24.98300	25.99100
17	25.01100	26.01900

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
5	24.80100	25.80900
6	24.85700	25.86500
7	24.91300	25.92100
8	24.96900	25.97700

ETSI 56 MHz

26 GHz Frequency – ETSI Band D (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
89	25.16850	26.17650
90	25.17550	26.18350
91	25.18250	26.19050
92	25.18950	26.19750
93	25.19650	26.20450
94	25.20350	26.21150
95	25.21050	26.21850
96	25.21750	26.22550
97	25.22450	26.23250
98	25.23150	26.23950
99	25.23850	26.24650
100	25.24550	26.25350
101	25.25250	26.26050
102	25.25950	26.26750
103	25.26650	26.27450
104	25.27350	26.28150
105	25.28050	26.28850
106	25.28750	26.29550
107	25.29450	26.30250
108	25.30150	26.30950

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
109	25.30850	26.31650
110	25.31550	26.32350
111	25.32250	26.33050
112	25.32950	26.33750
113	25.33650	26.34450
114	25.34350	26.35150
115	25.35050	26.35850
116	25.35750	26.36550
117	25.36450	26.37250
118	25.37150	26.37950
119	25.37850	26.38650
120	25.38550	26.39350
121	25.39250	26.40050
122	25.39950	26.40750
123	25.40650	26.41450
124	25.41350	26.42150
125	25.42050	26.42850
126	25.42750	26.43550
127	25.43450	26.44250
128	25.44150	26.44950

ETSI	TxLow (GHz)	TxHigh (GHz)
45	25.17200	26.18000
46	25.18600	26.19400
47	25.20000	26.20800
48	25.21400	26.22200
49	25.22800	26.23600
50	25.24200	26.25000
51	25.25600	26.26400
52	25.27000	26.27800
53	25.28400	26.29200
54	25.29800	26.30600
55	25.31200	26.32000
56	25.32600	26.33400
57	25.34000	26.34800
58	25.35400	26.36200
59	25.36800	26.37600
60	25.38200	26.39000
61	25.39600	26.40400
62	25.41000	26.41800
63	25.42400	26.43200
64	25.43800	26.44600

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
23	25.17900	26.18700
24	25.20700	26.21500
25	25.23500	26.24300
26	25.26300	26.27100
27	25.29100	26.29900
28	25.31900	26.32700
29	25.34700	26.35500
30	25.37500	26.38300
31	25.40300	26.41100
32	25.43100	26.43900

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
12	25.19300	26.20100
13	25.24900	26.25700
14	25.30500	26.31300
15	25.36100	26.36900
16	25.41700	26.42500

ETSI 56 MHz

28 GHz

28 GHz Frequency – Band A1X (Limited Availability)

FCC	TxLow (GHz)	TxHigh (GHz)
1	27.50500	27.95500
2	27.51500	27.96500
3	27.52500	27.97500
4	27.53500	27.98500
5	27.54500	27.99500
6	27.55500	28.00500
7	27.56500	28.01500
8	27.57500	28.02500
9	27.58500	28.03500
10	27.59500	28.04500
11	27.60500	28.05500
12	27.61500	28.06500
13	27.62500	28.07500
14	27.63500	28.08500
15	27.64500	28.09500
16	27.65500	28.10500
17	27.66500	28.11500
18	27.67500	28.12500
19	27.68500	28.13500
20	27.69500	28.14500

FCC 10 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
X1	27.51250	27.96250
X2	27.53750	27.98750
X3	27.56250	28.01250
X4	27.58750	28.03750
X5	27.61250	28.06250
X6	27.63750	28.08750
X7	27.66250	28.11250
X8	27.68750	28.13750

FCC 25 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
X1	27.52500	27.97500
X2	27.57500	28.02500
X3	27.62500	28.07500
X4	27.67500	28.12500

FCC 50 MHz

28 GHz Frequency – Band A1Y (Limited Availability)

FCC	TxLow (GHz)	TxHigh (GHz)
21	27.70500	28.15500
22	27.71500	28.16500
23	27.72500	28.17500
24	27.73500	28.18500
25	27.74500	28.19500
26	27.75500	28.20500
27	27.76500	28.21500
28	27.77500	28.22500
29	27.78500	28.23500
30	27.79500	28.24500
31	27.80500	28.25500
32	27.81500	28.26500
33	27.82500	28.27500
34	27.83500	28.28500
35	27.84500	28.29500
36	27.85500	28.30500
37	27.86500	28.31500
38	27.87500	28.32500
39	27.88500	28.33500
40	27.89500	28.34500

FCC 10 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
9	27.71250	28.16250
10	27.73750	28.18750
11	27.76250	28.21250
12	27.78750	28.23750
13	27.81250	28.26250
14	27.83750	28.28750
15	27.86250	28.31250
16	27.88750	28.33750

FCC 25 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
5	27.72500	28.17500
6	27.77500	28.22500
7	27.82500	28.27500
8	27.87500	28.32500

FCC 50 MHz**28 GHz Frequency – A2A3 (Limited Availability)**

FCC	TxLow (GHz)	TxHigh (GHz)
1	29.10500	31.08000
2	29.11500	31.09000
3	29.12500	31.10000
4	29.13500	31.11000
5	29.14500	31.12000
6	29.15500	31.13000
7	29.16500	31.14000
8	29.17500	31.15000
9	29.18500	31.16000
10	29.19500	31.17000
11	29.20500	31.18000
12	29.21500	31.19000
13	29.22500	31.20000
14	29.23500	31.21000
15	29.24500	31.22000

FCC 10 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
1	29.11250	31.08750
2	29.13750	31.11250
3	29.16250	31.13750
4	29.18750	31.16250
5	29.21250	31.18750
6	29.23750	31.21250

FCC 25 MHz

FCC	TxLow (GHz)	TxHigh (GHz)
1	29.12500	31.10000
2	29.17500	31.15000
3	29.22500	31.20000

FCC 50 MHz

28 GHz Frequency – Band B (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
53	27.91600	28.92400
54	27.92300	28.93100
55	27.93000	28.93800
56	27.93700	28.94500
57	27.94400	28.95200
58	27.95100	28.95900
59	27.95800	28.96600
60	27.96500	28.97300
61	27.97200	28.98000
62	27.97900	28.98700
63	27.98600	28.99400
64	27.99300	29.00100
65	28.00000	29.00800
66	28.00700	29.01500
67	28.01400	29.02200
68	28.02100	29.02900
69	28.02800	29.03600
70	28.03500	29.04300

----- ETSI 7 MHz -----

ETSI	TxLow (GHz)	TxHigh (GHz)
71	28.04200	29.05000
72	28.04900	29.05700
73	28.05600	29.06400
74	28.06300	29.07100
75	28.07000	29.07800
76	28.07700	29.08500
77	28.08400	29.09200
78	28.09100	29.09900
79	28.09800	29.10600
80	28.10500	29.11300
81	28.11200	29.12000
82	28.11900	29.12700
83	28.12600	29.13400
84	28.13300	29.14100
85	28.14000	29.14800
86	28.14700	29.15500
87	28.15400	29.16200
88	28.16100	29.16900

ETSI	TxLow (GHz)	TxHigh (GHz)
27	27.91950	28.92750
28	27.93350	28.94150
29	27.94750	28.95550
30	27.96150	28.96950
31	27.97550	28.98350
32	27.98950	28.99750
33	28.00350	29.01150
34	28.01750	29.02550
35	28.03150	29.03950
36	28.04550	29.05350
37	28.05950	29.06750
38	28.07350	29.08150
39	28.08750	29.09550
40	28.10150	29.10950
41	28.11550	29.12350
42	28.12950	29.13750
43	28.14350	29.15150
44	28.15750	29.16550

ETSI 14 MHz

UK Block Designation	ETSI	TxLow (GHz)	TxHigh (GHz)
	14	27.92650	28.93450
	15	27.95450	28.96250
Package 2	16	27.98250	28.99050
	17	28.01050	29.01850
	18	28.03850	29.04650
	19	28.06650	29.07450
	20	28.09450	29.10250
BFWA1	21	28.12250	29.13050
	22	28.15050	29.15850

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
8	27.96850	28.97650
9	28.02450	29.03250
10	28.08050	29.08850
11	28.13650	29.14450

ETSI 56 MHz

28 GHz Frequency – Band C (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
89	28.16800	29.17600
90	28.17500	29.18300
91	28.18200	29.19000
92	28.18900	29.19700
93	28.19600	29.20400
94	28.20300	29.21100
95	28.21000	29.21800
96	28.21700	29.22500
97	28.22400	29.23200
98	28.23100	29.23900
99	28.23800	29.24600
100	28.24500	29.25300
101	28.25200	29.26000
102	28.25900	29.26700
103	28.26600	29.27400
104	28.27300	29.28100
105	28.28000	29.28800
106	28.28700	29.29500

----- ETSI 7 MHz-----

ETSI	TxLow (GHz)	TxHigh (GHz)
107	28.29400	29.30200
108	28.30100	29.30900
109	28.30800	29.31600
110	28.31500	29.32300
111	28.32200	29.33000
112	28.32900	29.33700
113	28.33600	29.34400
114	28.34300	29.35100
115	28.35000	29.35800
116	28.35700	29.36500
117	28.36400	29.37200
118	28.37100	29.37900
119	28.37800	29.38600
120	28.38500	29.39300
121	28.39200	29.40000
122	28.39900	29.40700
123	28.40600	29.41400
124	28.41300	29.42100

ETSI	TxLow (GHz)	TxHigh (GHz)
45	28.17150	29.17950
46	28.18550	29.19350
47	28.19950	29.20750
48	28.21350	29.22150
49	28.22750	29.23550
50	28.24150	29.24950
51	28.25550	29.26350
52	28.26950	29.27750
53	28.28350	29.29150
54	28.29750	29.30550
55	28.31150	29.31950
56	28.32550	29.33350
57	28.33950	29.34750
58	28.35350	29.36150
59	28.36750	29.37550
60	28.38150	29.38950
61	28.39550	29.40350
62	28.40950	29.41750

ETSI 14 MHz

UK Block Designation	ETSI	TxLow (GHz)	TxHigh (GHz)
	23	28.17850	29.18650
	24	28.20650	29.21450
BFWA2	25	28.23450	29.24250
	26	28.26250	29.27050
	27	28.29050	29.29850
	28	28.31850	29.32650
	29	28.34650	29.35450
BFWA1	30	28.37450	29.38250
	31	28.40250	29.41050

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
12	28.19250	29.20050
13	28.24850	29.25650
14	28.30450	29.31250
15	28.36050	29.36850
16	28.41650	29.42450

ETSI 56 MHz

38 GHz

38 GHz Frequency – FCC Band A (Limited Availability)

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1A1	A1	38.60500	39.30500
1A2	A2	38.61500	39.31500
1A3	A3	38.62500	39.32500
1A4	A4	38.63500	39.33500
1A5	A5	38.64500	39.34500
2A1	B1	38.65500	39.35500
2A2	B2	38.66500	39.36500
2A3	B3	38.67500	39.37500
2A4	B4	38.68500	39.38500
2A5	B5	38.69500	39.39500
3A1	C1	38.70500	39.40500
3A2	C2	38.71500	39.41500
3A3	C3	38.72500	39.42500
3A4	C4	38.73500	39.43500
3A5	C5	38.74500	39.44500
4A1	D1	38.75500	39.45500
4A2	D2	38.76500	39.46500
4A3	D3	38.77500	39.47500
4A4	D4	38.78500	39.48500
4A5	D5	38.79500	39.49500
5A1	E1	38.80500	39.50500
5A2	E2	38.81500	39.51500
5A3	E3	38.82500	39.52500
5A4	E4	38.83500	39.53500
5A5	E5	38.84500	39.54500

FCC/IC 10 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1A1	A1	38.61250	39.31250
1A2	A2	38.63750	39.33750
2A1	B1	38.66250	39.36250
2A2	B2	38.68750	39.38750
3A1	C1	38.71250	39.41250
3A2	C2	38.73750	39.43750
4A1	D1	38.76250	39.46250
4A1	D2	38.78750	39.48750
5A1	E1	38.81250	39.51250
5A2	E2	38.83750	39.53750

FCC/IC 25 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
1A	A	38.62500	39.32500
2A	B	38.67500	39.37500
3A	C	38.72500	39.42500
4A	D	38.77500	39.47500
5A	E	38.82500	39.52500

FCC/IC 50 MHz

38 GHz Frequency – FCC Band B (Limited Availability)

FCC	IC	TxLow (GHz)	TxHigh (GHz)
6A1	F1	38.85500	39.55500
6A2	F2	38.86500	39.56500
6A3	F3	38.87500	39.57500
6A4	F4	38.88500	39.58500
6A5	F5	38.89500	39.59500
7A1	G1	38.90500	39.60500
7A2	G2	38.91500	39.61500
7A3	G3	38.92500	39.62500
7A4	G4	38.93500	39.63500
7A5	G5	38.94500	39.64500
8A1	I1	38.95500	39.65500
8A2	I2	38.96500	39.66500
8A3	I3	38.97500	39.67500
8A4	I4	38.98500	39.68500
8A5	I5	38.99500	39.69500
9A1	J1	39.00500	39.70500
9A2	J2	39.01500	39.71500
9A3	J3	39.02500	39.72500
9A4	J4	39.03500	39.73500
9A5	J5	39.04500	39.74500
10A1	K1	39.05500	39.75500
10A2	K2	39.06500	39.76500
10A3	K3	39.07500	39.77500
10A4	K4	39.08500	39.78500
10A5	K5	39.09500	39.79500

FCC/IC 10 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
6A1	F1	38.86250	39.56250
6A2	F2	38.88750	39.58750
7A1	G1	38.91250	39.61250
7A2	G2	38.93750	39.63750
8A1	I1	38.96250	39.66250
8A2	I2	38.98750	39.68750
9A1	J1	39.01250	39.71250
9A1	J2	39.03750	39.73750
10A1	K1	39.06250	39.76250
10A2	K2	39.08750	39.78750

FCC/IC 25 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
6A	F	38.87500	39.57500
7A	G	38.92500	39.62500
8A	H	38.97500	39.67500
9A	I	39.02500	39.72500
10A	J	39.07500	39.77500

FCC/IC 50 MHz

38 GHz Frequency – FCC Band C (Limited Availability)

FCC	IC	TxLow (GHz)	TxHigh (GHz)
10A1	J1	39.05500	39.75500
10A2	J2	39.06500	39.76500
10A3	J3	39.07500	39.77500
10A4	J4	39.08500	39.78500
10A5	J5	39.09500	39.79500
11A1	K1	39.10500	39.80500
11A2	K2	39.11500	39.81500
11A3	K3	39.12500	39.82500
11A4	K4	39.13500	39.83500
11A5	K5	39.14500	39.84500
12A1	L1	39.15500	39.85500
12A2	L2	39.16500	39.86500
12A3	L3	39.17500	39.87500
12A4	L4	39.18500	39.88500
12A5	L5	39.19500	39.89500
13A1	M1	39.20500	39.90500
13A2	M2	39.21500	39.91500
13A3	M3	39.22500	39.92500
13A4	M4	39.23500	39.93500
13A5	M5	39.24500	39.94500
14A1	N1	39.25500	39.95500
14A2	N2	39.26500	39.96500
14A3	N3	39.27500	39.97500
14A4	N4	39.28500	39.98500
14A5	N5	39.29500	39.99500

FCC/IC 10 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
10A1	F1	39.06250	39.76250
10A2	F2	39.08750	39.78750
11A1	G1	39.11250	39.81250
11A2	G2	39.13750	39.83750
12A1	I1	39.16250	39.86250
12A2	I2	39.18750	39.88750
13A1	J1	39.21250	39.91250
13A1	J2	39.23750	39.93750
14A1	K1	39.26250	39.96250
14A2	K2	39.28750	39.98750

FCC/IC 25 MHz

FCC	IC	TxLow (GHz)	TxHigh (GHz)
10A	J	39.07500	39.77500
11A	K	39.12500	39.82500
12A	L	39.17500	39.87500
13A	M	39.22500	39.92500
14A	N	39.27500	39.97500

FCC/IC 50 MHz

38 GHz Frequency – ETSI Band A (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
9	37.11750	38.37750
10	37.12450	38.38450
11	37.13150	38.39150
12	37.13850	38.39850
13	37.14550	38.40550
14	37.15250	38.41250
15	37.15950	38.41950
16	37.16650	38.42650
17	37.17350	38.43350
18	37.18050	38.44050
19	37.18750	38.44750
20	37.19450	38.45450
21	37.20150	38.46150
22	37.20850	38.46850
23	37.21550	38.47550
24	37.22250	38.48250
25	37.22950	38.48950
26	37.23650	38.49650
27	37.24350	38.50350
28	37.25050	38.51050
29	37.25750	38.51750
30	37.26450	38.52450
31	37.27150	38.53150
32	37.27850	38.53850
33	37.28550	38.54550
34	37.29250	38.55250
35	37.29950	38.55950
36	37.30650	38.56650
37	37.31350	38.57350
38	37.32050	38.58050
39	37.32750	38.58750
40	37.33450	38.59450

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
5	37.12100	38.38100
6	37.13500	38.39500
7	37.14900	38.40900
8	37.16300	38.42300
9	37.17700	38.43700
10	37.19100	38.45100
11	37.20500	38.46500
12	37.21900	38.47900
13	37.23300	38.49300
14	37.24700	38.50700
15	37.26100	38.52100
16	37.27500	38.53500
17	37.28900	38.54900
18	37.30300	38.56300
19	37.31700	38.57700
20	37.33100	38.59100

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
3	37.12800	38.38800
4	37.15600	38.41600
5	37.18400	38.44400
6	37.21200	38.47200
7	37.24000	38.50000
8	37.26800	38.52800
9	37.29600	38.55600
10	37.32400	38.58400

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
2	37.14200	38.40200
3	37.19800	38.45800
4	37.25400	38.51400
5	37.31000	38.57000

ETSI 56 MHz

38 GHz Frequency – ETSI Band B (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
41	37.34150	38.60150
42	37.34850	38.60850
43	37.35550	38.61550
44	37.36250	38.62250
45	37.36950	38.62950
46	37.37650	38.63650
47	37.38350	38.64350
48	37.39050	38.65050
49	37.39750	38.65750
50	37.40450	38.66450
51	37.41150	38.67150
52	37.41850	38.67850
53	37.42550	38.68550
54	37.43250	38.69250
55	37.43950	38.69950
56	37.44650	38.70650
57	37.45350	38.71350
58	37.46050	38.72050
59	37.46750	38.72750
60	37.47450	38.73450
61	37.48150	38.74150
62	37.48850	38.74850
63	37.49550	38.75550
64	37.50250	38.76250
65	37.50950	38.76950
66	37.51650	38.77650
67	37.52350	38.78350
68	37.53050	38.79050
69	37.53750	38.79750
70	37.54450	38.80450
71	37.55150	38.81150
72	37.55850	38.81850

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
21	37.34500	38.60500
22	37.35900	38.61900
23	37.37300	38.63300
24	37.38700	38.64700
25	37.40100	38.66100
26	37.41500	38.67500
27	37.42900	38.68900
28	37.44300	38.70300
29	37.45700	38.71700
30	37.47100	38.73100
31	37.48500	38.74500
32	37.49900	38.75900
33	37.51300	38.77300
34	37.52700	38.78700
35	37.54100	38.80100
36	37.55500	38.81500

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
11	37.35200	38.61200
12	37.38000	38.64000
13	37.40800	38.66800
14	37.43600	38.69600
15	37.46400	38.72400
16	37.49200	38.75200
17	37.52000	38.78000
18	37.54800	38.80800

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
6	37.36600	38.62600
7	37.42200	38.68200
8	37.47800	38.73800
9	37.53400	38.79400

ETSI 56 MHz

38 GHz Frequency – ETSI Band C (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
73	37.56550	38.82550
74	37.57250	38.83250
75	37.57950	38.83950
76	37.58650	38.84650
77	37.59350	38.85350
78	37.60050	38.86050
79	37.60750	38.86750
80	37.61450	38.87450
81	37.62150	38.88150
82	37.62850	38.88850
83	37.63550	38.89550
84	37.64250	38.90250
85	37.64950	38.90950
86	37.65650	38.91650
87	37.66350	38.92350
88	37.67050	38.93050
89	37.67750	38.93750
90	37.68450	38.94450
91	37.69150	38.95150
92	37.69850	38.95850
93	37.70550	38.96550
94	37.71250	38.97250
95	37.71950	38.97950
96	37.72650	38.98650
97	37.73350	38.99350
98	37.74050	39.00050
99	37.74750	39.00750
100	37.75450	39.01450
101	37.76150	39.02150
102	37.76850	39.02850
103	37.77550	39.03550
104	37.78250	39.04250

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
37	37.56900	38.82900
38	37.58300	38.84300
39	37.59700	38.85700
40	37.61100	38.87100
41	37.62500	38.88500
42	37.63900	38.89900
43	37.65300	38.91300
44	37.66700	38.92700
45	37.68100	38.94100
46	37.69500	38.95500
47	37.70900	38.96900
48	37.72300	38.98300
49	37.73700	38.99700
50	37.75100	39.01100
51	37.76500	39.02500
52	37.77900	39.03900

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
19	37.57600	38.83600
20	37.60400	38.86400
21	37.63200	38.89200
22	37.66000	38.92000
23	37.68800	38.94800
24	37.71600	38.97600
25	37.74400	39.00400
26	37.77200	39.03200

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
10	37.59000	38.85000
11	37.64600	38.90600
12	37.70200	38.96200
13	37.75800	39.01800

ETSI 56 MHz

38 GHz Frequency – ETSI Band D (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
105	37.78950	39.04950
106	37.79650	39.05650
107	37.80350	39.06350
108	37.81050	39.07050
109	37.81750	39.07750
110	37.82450	39.08450
111	37.83150	39.09150
112	37.83850	39.09850
113	37.84550	39.10550
114	37.85250	39.11250
115	37.85950	39.11950
116	37.86650	39.12650
117	37.87350	39.13350
118	37.88050	39.14050
119	37.88750	39.14750
120	37.89450	39.15450
121	37.90150	39.16150
122	37.90850	39.16850
123	37.91550	39.17550
124	37.92250	39.18250
125	37.92950	39.18950
126	37.93650	39.19650
127	37.94350	39.20350
128	37.95050	39.21050
129	37.95750	39.21750
130	37.96450	39.22450
131	37.97150	39.23150
132	37.97850	39.23850
133	37.98550	39.24550
134	37.99250	39.25250
135	37.99950	39.25950
136	38.00650	39.26650

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
53	37.79300	39.05300
54	37.80700	39.06700
55	37.82100	39.08100
56	37.83500	39.09500
57	37.84900	39.10900
58	37.86300	39.12300
59	37.87700	39.13700
60	37.89100	39.15100
61	37.90500	39.16500
62	37.91900	39.17900
63	37.93300	39.19300
64	37.94700	39.20700
65	37.96100	39.22100
66	37.97500	39.23500
67	37.98900	39.24900
68	38.00300	39.26300

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
27	37.80000	39.06000
28	37.82800	39.08800
29	37.85600	39.11600
30	37.88400	39.14400
31	37.91200	39.17200
32	37.94000	39.20000
33	37.96800	39.22800
34	37.99600	39.25600

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
14	37.81400	39.07400
15	37.87000	39.13000
16	37.92600	39.18600
17	37.98200	39.24200

ETSI 56 MHz

38 GHz Frequency – ETSI Band E (Limited Availability)

ETSI	TxLow (GHz)	TxHigh (GHz)
137	38.01350	39.27350
138	38.02050	39.28050
139	38.02750	39.28750
140	38.03450	39.29450
141	38.04150	39.30150
142	38.04850	39.30850
143	38.05550	39.31550
144	38.06250	39.32250
145	38.06950	39.32950
146	38.07650	39.33650
147	38.08350	39.34350
148	38.09050	39.35050
149	38.09750	39.35750
150	38.10450	39.36450
151	38.11150	39.37150
152	38.11850	39.37850
153	38.12550	39.38550
154	38.13250	39.39250
155	38.13950	39.39950
156	38.14650	39.40650
157	38.15350	39.41350
158	38.16050	39.42050
159	38.16750	39.42750
160	38.17450	39.43450

ETSI 7 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
69	38.01700	39.27700
70	38.03100	39.29100
71	38.04500	39.30500
72	38.05900	39.31900
73	38.07300	39.33300
74	38.08700	39.34700
75	38.10100	39.36100
76	38.11500	39.37500
77	38.12900	39.38900
78	38.14300	39.40300
79	38.15700	39.41700
80	38.17100	39.43100

ETSI 14 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
35	38.02400	39.28400
36	38.05200	39.31200
37	38.08000	39.34000
38	38.10800	39.36800
39	38.13600	39.39600
40	38.16400	39.42400

ETSI 28 MHz

ETSI	TxLow (GHz)	TxHigh (GHz)
18	38.03800	39.29800
19	38.09400	39.35400
20	38.15000	39.41000

ETSI 56 MHz

Horizon Quantum Modulation Modes

North America Modes

Lower 6GHz (2)	11GHz (8)	18GHz*(26)	23GHz*(26)
NA_L6_29.65_144_128QAM	NA_11_30_107_32QAM	NA_18_50_67_QPSK	NA_23_50_67_QPSK
NA_L6_29.65_190_256QAM	NA_11_30_165_128QAM	NA_18_50_110_16QAM	NA_23_50_110_16QAM
	NA_11_30_212_256QAM	NA_18_50_171_32QAM	NA_23_50_171_32QAM
Upper 6GHz (2)	NA_11_40_110_16QAM	NA_18_50_215_64QAM	NA_23_50_215_64QAM
NA_U6_10_48_64QAM	NA_11_40_142_32QAM	NA_18_50_271_128QAM	NA_23_50_271_128QAM
NA_U6_10_65_256QAM	NA_11_40_181_64QAM	NA_18_50_322_256QAM	NA_23_50_322_256QAM
	NA_11_40_212_128QAM	NA_18_50_371_256QAM	NA_23_50_371_256QAM
	NA_11_40_277_256QAM	NA_18_40_57_QPSK	NA_23_40_57_QPSK
	15GHz (6)	NA_18_40_111_16QAM	NA_23_40_111_16QAM
	IC_15_40_58_QPSK	NA_18_40_142_32QAM	NA_23_40_142_32QAM
	IC_15_40_110_16QAM	NA_18_40_181_64QAM	NA_23_40_181_64QAM
	IC_15_40_142_32QAM	NA_18_40_200_128QAM	NA_23_40_200_128QAM
	IC_15_40_181_64QAM	NA_18_40_277_256QAM	NA_23_40_277_256QAM
	IC_15_40_212_256QAM	NA_18HP_50_364_256QAM	NA_23HP_50_364_256QAM
	IC_15_40_277_256QAM	*SP/HP avail for above variants	

28GHz (12)	38GHz
NA_28_10_14_QPSK	38_10_14_QPSK
NA_28_10_22_16QAM	38_10_22_16QAM
NA_28_10_48_64QAM	38_10_48_64QAM
NA_28_10_65_256QAM	38_10_65_QPSK
NA_28_25_33_QPSK	38_25_33_16QAM
NA_28_25_53_16QAM	38_25_53_32QAM
NA_28_25_80_32QAM	38_25_80_128QAM
NA_28_25_107_32QAM	38_25_107_256QAM
NA_28_25_174_256QAM	38_25_174_QPSK
NA_28_50_67_QPSK	38_50_67_QPSK
NA_28_50_110_16QAM	38_50_110_16QAM
NA_28_50_171_32QAM	38_50_171_32QAM
NA_28_50_215_64QAM	38_50_215_128QAM
NA_28_50_271_128QAM	38_50_271_256QAM
NA_28_50_322_256QAM	38_50_322_16QAM
NA_28_50_364_256QAM	38_50_364_32QAM

ETSI/ITU Modes

Lower 6GHz (6)	Lower/Upper 7GHz (15)	7/8GHz (21)	8GHz (15)
L6_29.65_37_QPSK	LU7_7_11_QPSK	7/8_7_11_QPSK	8_7_11_QPSK
L6_29.65_48_QPSK	LU7_7_18_16QAM	7/8_7_18_16QAM	8_7_18_16QAM
L6_29.65_71_16QAM	LU7_7_33_64QAM	7/8_7_33_64QAM	8_7_33_64QAM
L6_29.65_100_32QAM	LU7_7_39_128QAM	7/8_7_39_128QAM	8_7_39_128QAM
L6_29.65_144_128QAM	LU7_14_23_QPSK	7/8_14_23_QPSK	8_14_23_QPSK
L6_29.65_190_256QAM	LU7_14_36_16QAM	7/8_14_36_16QAM	8_14_36_16QAM
Lower 6GHz (6)	LU7_14_47_32QAM	7/8_14_47_32QAM	8_14_47_32QAM
U6_40_110_16QAM	LU7_14_70_128QAM	7/8_14_70_128QAM	8_14_70_128QAM
U6_40_142_32QAM	LU7_14_95_256QAM	7/8_14_95_256QAM	8_14_95_256QAM
U6_40_181_64QAM	LU7_28_37_QPSK	7/8_28_37_QPSK	8_28_37_QPSK
U6_40_212_256QAM	LU7_28_48_QPSK	7/8_28_48_QPSK	8_28_48_QPSK
U6_40_277_256QAM	LU7_28_71_16QAM	7/8_28_71_16QAM	8_28_71_16QAM
	LU7_28_100_32QAM	7/8_28_100_32QAM	8_28_100_32QAM
	LU7_28_144_128QAM	7/8_28_144_128QAM	8_28_144_128QAM
	LU7_28_190_256QAM	7/8_28_190_256QAM	8_28_190_256QAM
		7/8_29.65_37_QPSK	
		7/8_29.65_48_QPSK	
		7/8_29.65_71_16QAM	
		7/8_29.65_100_32QAM	
		7/8_29.65_144_128QAM	
		7/8_29.65_190_256QAM	

10.5GHz (15)	11GHz (5)	13GHz (20)	15GHz (24)
10.5_7_11_QPSK	11_40_110_16QAM	13_7_11_QPSK	15_7_11_QPSK
10.5_7_18_16QAM	11_40_142_32QAM	13_7_18_16QAM	15_7_18_16QAM
10.5_7_33_64QAM	11_40_181_64QAM	13_7_33_64QAM	15_7_33_64QAM
10.5_7_39_128QAM	11_40_212_256QAM	13_7_39_128QAM	15_7_39_128QAM
10.5_14_23_QPSK	11_40_277_256QAM	13_14_23_QPSK	15_14_23_QPSK
10.5_14_36_16QAM		13_14_36_16QAM	15_14_36_16QAM
10.5_14_47_32QAM		13_14_47_32QAM	15_14_47_32QAM
10.5_14_70_128QAM		13_14_70_128QAM	15_14_70_128QAM
10.5_14_95_256QAM		13_14_95_256QAM	15_14_95_256QAM
10.5_28_37_QPSK		13_28_37_QPSK	15_28_37_QPSK
10.5_28_48_QPSK		13_28_48_QPSK	15_28_48_QPSK
10.5_28_71_16QAM		13_28_71_16QAM	15_28_71_16QAM
10.5_28_100_32QAM		13_28_100_32QAM	15_28_100_32QAM
10.5_28_144_128QAM		13_28_144_128QAM	15_28_144_128QAM
10.5_28_190_256QAM		13_28_190_256QAM	15_28_190_256QAM
		13_56_65_QPSK	15_55_216_32QAM
		13_56_111_16QAM	15_55_290_128QAM
		13_56_216_32QAM	15_55_385_256QAM
		13_56_290_128QAM	15_40_110_16QAM
		13_56_385_256QAM	15_40_142_32QAM
			15_40_181_64QAM
			15_40_212_256QAM
			15_40_277_256QAM
			15_40_110_16QAM

18GHz*(38)	23GHz*(38)
18_7_11_QPSK	23_7_11_QPSK
18_7_18_16QAM	23_7_18_16QAM
18_7_33_64QAM	23_7_33_64QAM
18_7_39_128QAM	23_14_23_QPSK
18_13.75_23_QPSK	23_14_36_16QAM
18_13.75_36_16QAM	23_14_47_32QAM
18_13.75_47_32QAM	23_14_70_128QAM
18_13.75_70_128QAM	23_14_95_256QAM
18_13.75_95_256QAM	23_28_37_QPSK
18_27.5_37_QPSK	23_28_48_QPSK
18_27.5_48_QPSK	23_28_71_16QAM
18_27.5_71_16QAM	23_28_100_32QAM
18_27.5_100_32QAM	23_28_144_128QAM
18_27.5_144_128QAM	23_28_190_256QAM
18_27.5_190_256QAM	23_56_65_QPSK
18_55_111_16QAM	23_56_111_16QAM
18_55_216_32QAM	23_56_216_32QAM
18_55_290_128QAM	23_56_290_128QAM
18_55_385_256QAM	23_56_385_256QAM
*SP/HP avail for above variants	

26GHz (18)	28GHz(18)	38GHz(16)
26_7_11_QPSK	28_7_11_QPSK	38_7_11_QPSK
26_7_18_16QAM	28_7_18_16QAM	38_7_18_16QAM
26_7_33_64QAM	28_7_33_64QAM	38_7_33_64QAM
26_14_23_QPSK	28_14_23_QPSK	38_14_23_QPSK
26_14_36_16QAM	28_14_36_16QAM	38_14_36_16QAM
26_14_47_32QAM	28_14_47_32QAM	38_14_47_32QAM
26_14_70_128QAM	28_14_70_128QAM	38_14_70_128QAM
26_14_95_256QAM	28_14_95_256QAM	38_14_95_256QAM
26_28_37_QPSK	28_28_37_QPSK	38_28_37_QPSK
26_28_48_QPSK	28_28_48_QPSK	38_28_48_QPSK
26_28_71_16QAM	28_28_71_16QAM	38_28_71_16QAM
26_28_100_32QAM	28_28_100_32QAM	38_28_100_32QAM
26_28_144_128QAM	28_28_144_128QAM	38_28_144_128QAM
26_28_190_256QAM	28_28_190_256QAM	38_28_190_256QAM
26_56_65_QPSK	28_56_65_QPSK	38_56_65_QPSK
26_56_111_16QAM	28_56_111_16QAM	38_56_111_16QAM
26_56_216_32QAM	28_56_216_32QAM	38_56_216_32QAM
26_56_290_128QAM	28_56_290_128QAM	38_56_290_128QAM
26_56_385_256QAM	28_56_385_256QAM	38_56_385_256QAM

listed values.