



FZ-Fix, 27.09.2012

---

## Microwave Links Point-to-Point

### Important characteristics for applications in SUI

---

BAKOM has defined

- main use per frequency band according to System class: low / medium / HIGH,
- restricted number of available Channel width (maximally 3 consecutive values).

For more details please refer to Radio Interface Regulations RIR0302-nn.

The following table shows the summary of important characteristics per frequency band:

- Reference documents (RIR0302-nn, ERC, ITU-R)
- Channel width
- Duplex separation
- System class:
  - low ... equipment with QPSK or 16-QAM or equivalent,
  - medium ... equipment with 32- or 64-QAM or equivalent,
  - HIGH ... equipment with 128- or 256-QAM or higher.
- Path length, minimum for  
Northern part of Switzerland, ANS (based on 42 mm/h, 99,99%) and  
Southern part of Switzerland, ASS (calculated for 80 mm/h, 99,99%)
- Frequency planning assumptions:
  - minimal antenna gain,
  - RX input level, nominal  
... defined for clear sky conditions with ATPC (Automatic Transmitter Power Control) set to  
minimal TX output power,
  - site sharing radius  
... minimal distance between TX of different band situation to avoid high/low clashes,
  - max. EIRP  
... the operational EIRP of a TX will be specified in the license so that nominal level at input of  
the corresponding RX will be met,
- ACM (Adaptive Coded Modulation)  
designates frequency bands where ACM is possible or Not, more details in RIR0302-nn,
- ATPC range (minimum / maximum value).

## Preferred frequency bands for FS P-P in SUI

Band [GHz]	RIR 0302-	ERC Rec.	ITU-R Rec.	Duplex separation [MHz]	Channel width [MHz]	System class	Antenna gain, min. [dBi]	Path length, min.		EIRP, max. [dBW]	Site- sharing radius [m]	Receive level, nom. [dBm]	ACM	ATPC	ATPC range	
								ANS [km]	ASS [km]						min. [dB]	max. [dB]
1) 6.2	06	14-01	F.383	252.04	29.65	HIGH	34.0	30	30	55.0	600	-50	N	Y	15	20
6.8	07	14-02	F.384	340	30, [40] <sup>3)</sup>	HIGH	35.0	30	30	55.0	600	-50	N	Y	15	20
7.1	08	(02)06	F.385	154	7, 14	low	36.0	20	20	50.0	600	-55	N	Y	15	20
7.4	10	(02)06	F.385	154	14, 28	HIGH	36.0	20	20	50.0	600	-50	N	Y	15	20
10.0	11	12-05		350	14, 7, [3.5]	low	33.0	15	15	50.0	900	-55	N	Y	10	20
1) 11.2	12	12-06	F.387	530	28, [40] <sup>3)</sup>	HIGH	40.0	10	10	55.0	900	-50	N	Y	15	20
1) 13.0	13	12-02	F.497	266	14, 7, [3.5]	low	34.0	10	10	55.0	600	-50	Y	Y	10	20
15.0	14	12-07	F.636	728	14, 7	low	36.0	10	10	55.0	600	-55	Y	Y	10	20
18.0	15	12-03	F.595	1010	27.5, 13.75, 7.5	low	36.0	8	4	46.0	400	-55	Y	Y	12	20
18.0	16	12-03	F.595	1010	27.5, 13.75	medium	36.0	5	3	46.0	400	-50	Y	Y	12	20
18.0	17	12-03	F.595	1010	27.5, [13.75]	HIGH	36.0	3	3	46.0	400	-50	Y	Y	12	20
23.0	21	T/R 13-02	F.637	1008	[28], 14, 7	low	34.0	5	3	50.0	200	-50	Y	Y	10	20
26.0	23	T/R 13-02	F.748	1008	56, 28	HIGH	40.0	2	2	41.5	200	-40	Y	Y	10	20
28.0	24	T/R 13-02	F.748	1008	56, 28	low	36.0	2	1.5	40.0	200	-40	Y	Y	10	20
32.0	31	(01)02	F.1520	812	28, [14]	medium	36.0	0.5	0.5	50.0	150	-50	N	Y	10	20
32.0	31	(01)02	F.1520	812	28, [14]	HIGH	36.0	0.5	0.5	50.0	150	-50	Y	Y	10	20
38.0	32	T/R 12-01	F.749	1260	[28], 14, 7	low	36.0	1	1	50.0	150	-50	Y	Y	10	20
42.0	48	(01)04		1500	56, 28	low	38.0	0.5	0.5	50.0	150	-40	Y	Y	10	20
52.0	41	12-11	F.1496	616	28, 14, 7	low	40.0	0.15	0.15	30.0	100	-50	N	O	10	20

1) geographical limitations (exclusion areas)

3) for links in operation before 01.01.2011 only

channel width: [xxx] ... assignments in particularly justified cases  
 ANS northern part of Switzerland  
 ASS southern part of Switzerland

ACM / ATPC: Y yes  
 N no  
 O optional

Figure 1