



FZ-Fix, 05.04.2023

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

Please note RIR 0302-.. for more detailed technical information.

	Band [GHz]	RIR 0302-	ERC Rec.	ITU-R Rec.	Duplex separation [MHz]	Channel width [MHz]	System class	Antenna gain, min. [dBi]	Antenna class EN 302 217-4-2	Path length, min.		EIRP, max. [dBW]	Site- sharing radius [m]	Receive level, nom. ²⁾ [dBm]	ACM	ATPC	ATPC range	
										ANS [km]	ASS [km]						min. [dB]	max. [dB]
1)	4	05	12-08	F.382	213.00	29	HIGH	34.0	3	40	40	55.0	600	-50	Y	Y	15	20
1)	6.2	06	14-01	F.383	252.04	29.65	HIGH	34.0	3	30	30	55.0	600	-50	Y	Y	15	20
	6.8	07	14-02	F.384	340	30, 40	HIGH	35.0	3	30	30	55.0	600	-50	Y	Y	15	20
4)	7.1	08	(02)06	F.385	454	7, 14	low	36.0	3	20	20	50.0	600	-55	Y	Y	15	20
4)	7.4	10	(02)06	F.385	454	14, 28	HIGH	36.0	3	20	20	50.0	600	-50	Y	Y	15	20
1)	10.0	11	12-05		350	[28], 14, 7	low	33.0	3	15	15	50.0	900	-55	Y	Y	10	20
1)	11.2	12	12-06	F.387	530	28, [40] ³⁾	HIGH	40.0	3	10	10	55.0	900	-50	Y	Y	15	20
	13.0	13	12-02	F.497	266	[28], 14, 7	low	34.0	3	10	10	55.0	600	-50	Y	Y	10	20
	15.0	14	12-07	F.636	728	[28], 14, 7	low	36.0	3	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	3	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	3	5	3	46.0	400	-50	Y	Y	12	20
	18.0	17	12-03	F.595	1010	[55], 27.5, [13.75]	HIGH	36.0	3	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	3	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	3	2	2	41.5	200	-40	Y	Y	10	20
	28.0	24	T/R 13-02	F.748	1008	[112], 56, 28	low	36.0	3	2	1.5	40.0	200	-40	Y	Y	10	20
	32.0	31	(01)02	F.1520	812	28, [14]	medium	36.0	3A, 3B, 3C	0.5	0.5	50.0	150	-50	N	Y	10	20
	32.0	31	(01)02	F.1520	812	[56], 28, 14	HIGH	36.0	3A, 3B, 3C	0.5	0.5	50.0	150	-50	Y	Y	10	20
	38.0	32	T/R 12-01	F.749	1260	[56], [28], 14, 7	low	36.0	3A, 3B, 3C	1	1	50.0	150	-50	Y	Y	10	20
	42.0	48	(01)04		1500	[112], 56, 28	low	38.0	3A, 3B, 3C	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	H = 2, V = 3A	0.15	0.15	30.0	100	-50	Y	O	10	20
	80.0	46	(05)07		10000	[1000], 500, 250	low	38.0	3	0.1	0.1	55.0	50	-40	Y	Y	10	20

- 1) geographical limitations (exclusion areas)
 2) Receive level, tolerance: < 50 GHz +1 to -10 dB, > 50 GHz +2 to -10 dB
 3) for links in operation before 01.01.2011 only
 4) Frequency Band assigned to MIL / no use

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

allowed reference modes for ACM see RIR 0302-..