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# Wireless Infrastructure Products Selection Guide

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## Digital Radio Modules

### Receiver Down Converter Modules

Part Number	RF Tuning Range (GHz)	IF Frequency (MHz)	Min. Gain (dB)	Gain Flatness	Noise Figure (dB)	Power Input at P <sub>1 dB</sub> (dBm)
DRR1-23XX	21.2 to 23.6	630 or 1260	18	±1	4.5	-17
DRR1-38XX	37 to 40	630 or 1260	18	±1	7.5	-17

### Transmitter Modules

Part Number	RF Tuning Range (GHz)	Phase Noise @ 100 KHz (dBc)	RF Output Power (dBm)	Main Tuning Sensitivity (MHz/V)	Attenuation (dB)	DC Circuit Power @ +5 V (mA)
DRT1-2311 or -2312	21.2 to 23.6	-85	20	260	—	600
DRT1-2321 or -2322	21.2 to 23.6	-85	20	260	30	975
DRT1-3813	37 to 40	-82	19	200	—	600
DRT1-3823	37 to 40	-82	19	200	30	975

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## Voltage Controlled Oscillators

### Varactor-Tuned Oscillators

Part Number	Frequency Range Min. (MHz)	Tuning Voltage Low Frequency Min. (VDC)	Tuning Voltage High Frequency Max. (VDC)	Phase Noise @ 100 kHz Typ. (dBc/Hz)
VTO-8060	600-1000	3±1	40±8	-117
VTO-8080	800-1400	2±1.5	35±10	-107
VTO-8090	900-1600	2±1	48+8/-10	-107
VTO-8150	1500-2500	2.5±1	47±8	-102
VTO-8200	2000-3000	2+2/-1	20±4	-102
VTO-8240	2400-3700	2+2/-1	30±8	-102

## Voltage Controlled Oscillators

### Varactor-Tuned Oscillators, continued

Part Number	Frequency Range Min. (MHz)	Tuning Voltage Low Frequency Min. (VDC)	Tuning Voltage High Frequency Max. (VDC)	Phase Noise @ 100 kHz Typ. (dBc/Hz)
VTO-8360	3600-4300	8±1	24±4	-108
VTO-8430	4300-5800	1.0	20.0	-97
VTO-8580	5800-6600	5±2.5	24+3/-5	-92
VTO-8650	6500-8600	2±1	20±5	-88
VTO-8810	8100-9100	2	16	-88
VTO-8850	8500-9600	5±2	13±5	-90
VTO-8950	9500-10500	4±1	10	-80

### Hyperabrupt Varactor-Tuned Oscillators

Part Number	Frequency Range Min. (MHz)	Tuning Voltage Low Frequency Min. (VDC)	Tuning Voltage High Frequency Max. (VDC)	Phase Noise @ 100 kHz Typ. (dBc/Hz)
VTO-9032	320-640	0	20	-103
VTO-9050	500-1000	0	20	-108
VTO-9068	680-1360	0	20	-103
VTO-9090	900-1600	2	18	-108
VTO-9120	1200-2000	3±1	12±2	-105
VTO-9130	1300-2300	2	20	-105

[www.hp.com/go/rf](http://www.hp.com/go/rf)

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