

Harmonic Tuners



The MPT provides unmatched performances and capabilities
- Harmonic tuning, high VSWR and wideband coverage

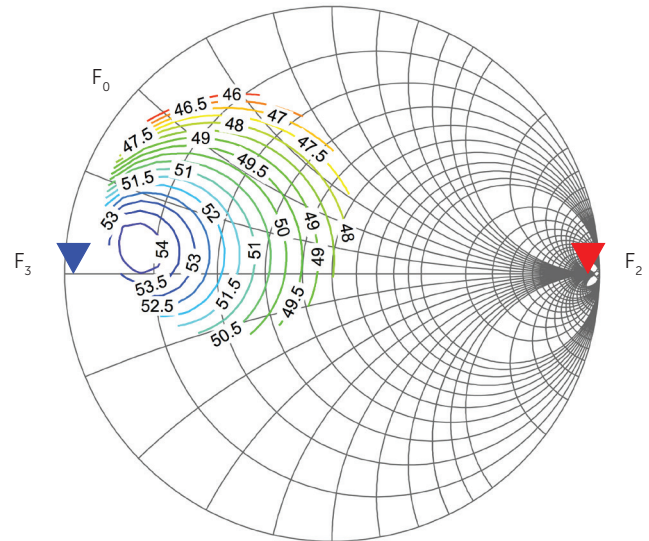
MPT Series

The MPT is Focus' flagship tuner. Its performance is unmatched and its capabilities make it the most popular tuner on the market today. Multi-purpose tuners (MPT) use three wideband probes, allowing independent control of the amplitude and phase of the reflection factor at all three harmonic frequencies simultaneously.

The MPT is widely used for advanced applications like high power/efficiency RF amplifier design. By controlling the harmonic impedances at the source and load, users can generate more robust behaviour models and have better insight on how their device performs in all classes of operation.

The MPT can be used to pre-match impedances at the fundamental and the harmonic frequencies making it ideal for hybrid active systems, reducing the power needed to drive the load of high power devices.

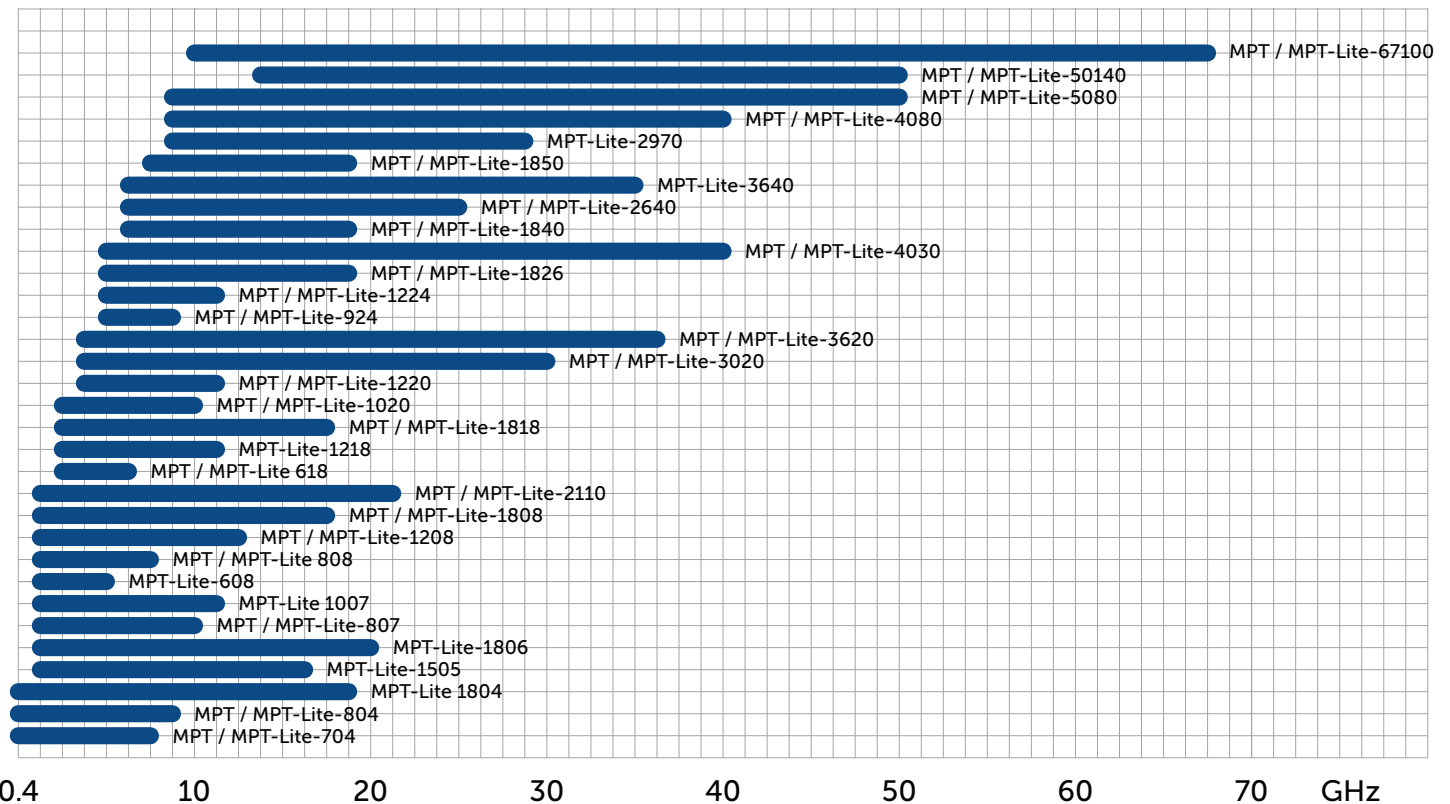
MPT-Lite tuners use two probes and control the fundamental and one harmonic frequency (2Fo or 3Fo).



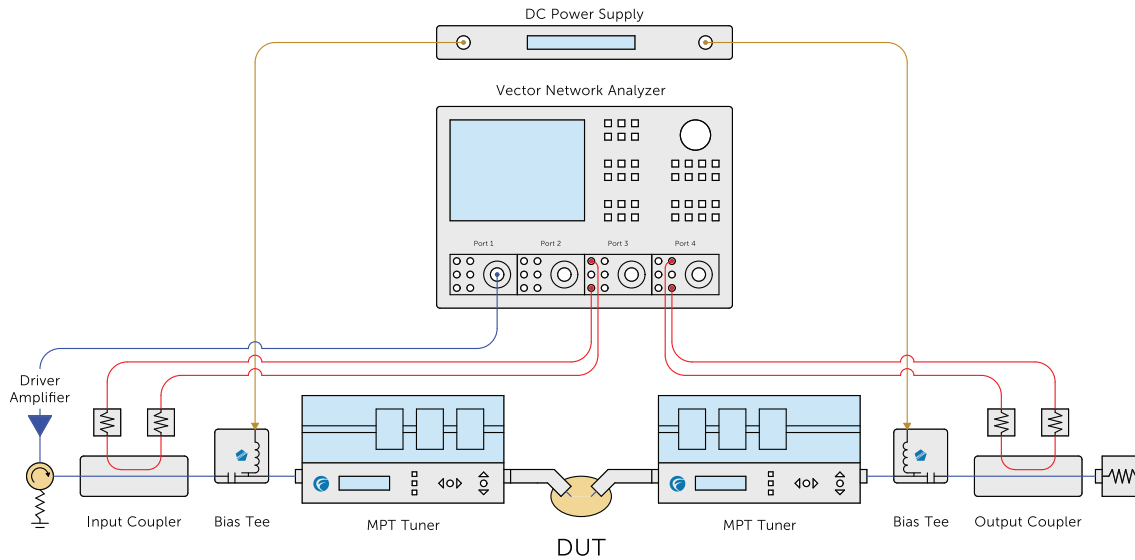
MPT: 6 US Patents  MPT-Lite: 3 US Patents 

Automated Wideband Harmonic Tuner Portfolio

The deepest portfolio of unique harmonic tuners from 0.4-67GHz (and growing)



Typical Vector Load Pull Setup



Vector Load Pull allows measuring the input and output large signal impedances of the DUT, the input delivered power, the real added efficiency, and "in-situ" absolute tuner Gamma, thus not relying on mechanical tuner repeatability.

MPT-67100 (10-67GHz)

The MPT-67100 is widely used in frequency bands like X, Ku, K and Ka, but was designed with 5G applications in mind. The frequency response of the probes was optimized for increased tuning range at 28 and 37GHz. Like every MPT it can be set in high VSWR mode or harmonic mode making it ideal for low impedance tuning and advanced device characterisation like behaviour modeling.



MPT-3620 (2-36GHz)

The MPT-3620's unique frequency coverage allows the user to do testing in both the cellular and millimeter wave spectrum. Widely used for applications like 802.11 the MPT-3620 provides continuous fundamental and harmonic frequency coverage for 802.11a/b/g/n as well as 802.11ac. Its small footprint makes it also ideal for on wafer applications as well as production testing.



MPT-1808 (0.8-18GHz)

The MPT-1808 is by far the most commonly used harmonic tuner in the industry today. Its versatility and performance are simply unmatched. This specific MPT is mainly used for advanced device characteristic, which requires low impedance tuning and harmonic frequency control. For obvious reasons this tuner was designed for Cellular network standards like GSM, CDMA, HSPA, Wi-MAX, LTE and more.



Model Specifications

Tuner Models: MPT-XXYY(Y): XX=Fmax (in GHz); YY=Fmin (in x 0.1GHz)

-IBL = Integrated Bendline

-HR = High Reflection

MPT

Model	Frequency	Connector
MPT-704	0.4 - 7 GHz	APC-7, N Type
MPT-804	0.4 - 8 GHz	APC-7, N Type
MPT-807	0.7 - 8 GHz	APC-7, N Type
MPT-1007	0.7 - 10 GHz	APC-7, N Type
MPT-808	0.8 - 8 GHz	APC-7, N Type
MPT-1208	0.8 - 12 GHz	APC-7, N Type
MPT-1808	0.8 - 18 GHz	APC-7, N Type
MPT-2110	1 - 21 GHz	3.5 mm
MPT-618	1.8 - 6 GHz	APC-7, N Type
MPT-1818	1.8 - 18 GHz	APC-7, N Type
MPT-1020	2 - 10 GHz	APC-7, N Type
MPT-1220	2 - 12 GHz	APC-7, N Type
MPT-3020	2 - 30 GHz	3.5 mm
MPT-3620	2 - 36 GHz	2.9 mm
MPT-924	2.4 - 9 GHz	APC-7, N Type
MPT-1224	2.4 - 12 GHz	APC-7, N Type
MPT-1826	2.6 - 18 GHz	APC-7, N Type
MPT-4030	3 - 40 GHz	2.9 mm
MPT-1840	4 - 18 GHz	APC-7, N Type
MPT-2640	4 - 26 GHz	3.5 mm
MPT-1850	5 - 18 GHz	APC-7, N Type
MPT-4080	8 - 40 GHz	2.9 mm
MPT-5080	8 - 50 GHz	2.4 mm
MPT-50140	14 - 50 GHz	2.4 mm
MPT-67100	10 - 67 GHz	1.85 mm (V)

MPT-Lite

Model	Frequency	Connector
MPT-Lite-1804	0.4 - 18 GHz	APC-7, N Type
MPT-Lite-1505	0.5 - 15 GHz	APC-7, N Type
MPT-Lite-1806	0.6 - 18 GHz	APC-7, N Type
MPT-Lite-1007	0.7 - 10 GHz	APC-7, N Type
MPT-Lite-608	0.8 - 6 GHz	APC-7, N Type
MPT-Lite-808	0.8 - 8 GHz	APC-7, N Type
MPT-Lite-1208	0.8 - 12 GHz	APC-7, N Type
MPT-Lite-1808	0.8 - 18 GHz	APC-7, N Type
MPT-Lite-1218	1.8 - 12 GHz	APC-7, N Type
MPT-Lite-1818	1.8 - 18 GHz	APC-7, N Type
MPT-Lite-3620	2 - 36 GHz	2.9 mm
MPT-Lite-3640	4 - 36 GHz	2.9 mm
MPT-Lite-2970	7 - 29 GHz	3.5 mm

MPT Model & Tuning Capability

MPT-XXYY tunes (example MPT-1808)

F0 tuning	$YY \leq F0 \leq XX$	Ex: $0.8 \leq F0 \leq 18\text{GHz}$
F0 + 2F0 tuning	$YY \leq F0 \leq XX/2$; $2*YY \leq 2F0 \leq XX$	Ex: $0.8 \leq F0 \leq 9\text{GHz}$; $1.6 \leq 2F0 \leq 18\text{GHz}$
F0 + 2F0 + 3F0 tuning	$YY \leq F0 \leq XX/3$; $2*YY \leq 2F0 \leq 2/3*XX$; $3*YY \leq 3F0 \leq XX$	Ex: $0.8 \leq F0 \leq 6\text{GHz}$; $1.6 \leq 2F0 \leq 9\text{GHz}$; $2.4 \leq 3F0 \leq 18\text{GHz}$

