TABLE OF CHALLENGED CLAIMS

1[pre]	An adaptive method for predistorting an RF modulated signal, to be
	transmitted, supplied by a signal source to an input of a power
	amplifier having an output for delivering an amplified output signal,
	said method comprising the steps of:
1[a]	predistorting the RF modulated signal to be transmitted using an I/Q
	modulator interposed between the signal source and the input of the
	power amplifier, and controlled by means of amplitude and phase look-
	up tables stored in a distorting generator;
1[b]	producing, via a first digital receiver, a first feedback signal in response
	to the RF predistorted signal;
1[c]	producing, via a second digital receiver, a second feedback signal in
	response to the RF amplified output signal from the power amplifier;
1[d]	modeling the power amplifier in response to the first and second
	feedback signals; and
1[e]	updating the predistortion amplitude and phase look-up tables in
	response to said modeling of the power amplifier,
1[f]	wherein said second feedback signal includes the complex envelope of
	the RF amplified output signal, and
1[g]	wherein said modeling step includes the discrimination of the complex
101	envelope of the first feedback signal referenced to the complex
	envelope of the second feedback signal to yield a predistortion function
	correlated to a behaviour of the power amplifier including
	nonlinearities and memory effects.
2	An adaptive method as recited in claim 1, wherein said modeling step
	is done in real time.
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3[pre]	An adaptive method for predistorting an RF modulated signal, to be
	transmitted, supplied by a signal source to an input of a power
	amplifier having an output for delivering an amplified output signal,
	said method comprising the steps of:
3[a]	predistorting the RF modulated signal to be transmitted using an I/Q
	modulator interposed between the signal source and the input of the
	power amplifier, and controlled by means of amplitude and phase look-
	up tables stored in a distorting generator;
3[b]	producing, via a first digital receiver, a first feedback signal in response
	to the RF predistorted signal;
3[c]	producing, via a second digital receiver, a second feedback signal in
	response to the RF amplified output signal from the power amplifier;

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3[d]	modeling the power amplifier in response to the first and second
	feedback signals; and
3[e]	updating the predistortion amplitude and phase look-up tables in
	response to said modeling of the power amplifier,
3[f]	wherein said updating step is done when a linearity metric adjacent
	channel power ratio (ACPR) measurement sub-step indicates that the
	predistorting step is not adequate to meet predetermined ACPR
	standards.
4	An adaptive method as recited in claim 3, wherein said linearity metric
	ACPR measurement sub-step is done via a digital receiver that includes
	a first channel tuned to a mean frequency and a second channel that is
	tuned to a predetermined offset frequency, said linearity metric ACPR
	measurement sub-step including comparing an average power at the
	mean frequency and at the predetermined offset frequency.

5[pre]	An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said adaptive device comprising:
5[a]	an I/Q modulator interposed between the signal source and the input of the power amplifier;
5[b]	a distorting generator including predistortion amplitude and phase look-up tables; said distorting generator controlling said I/Q modulator to predistort the RF modulated signal to be transmitted in amplitude and in phase;
5[c]	a first digital receiver producing a first feedback signal in response to the RF predistorted signal from said I/Q modulator;
5[d]	a second digital receiver producing a second feedback signal in response to the RF amplified output signal from the power amplifier;
5[e]	a control module receiving said first and second feedback signals from said first and second digital receivers; said control module being so configured as to model the power amplifier in response to the first and second feedback signals and to update said amplitude and phase look- up tables of said distorting generator in response to a dynamic modeling of the power amplifier;
5[f]	wherein said look-up tables of said distorting generator are indexed by an envelope detector that detects the envelope of the signal to be transmitted before predistortion.

6	An adaptive device as recited in claim 5, wherein said envelope
	detector indexes the distorting generator via an analog to digital
	converter.

7[pre]	An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by a signal source to an input of a power
	amplifier having an output for delivering an amplified output signal,
	said adaptive device comprising:
75.1	
7[a]	an I/Q modulator interposed between the signal source and the input of the power amplifier;
7[b]	a distorting generator including predistortion amplitude and phase
,[_]	look-up tables; said distorting generator controlling said I/Q modulator
	to predistort the RF modulated signal to be transmitted in amplitude
	and in phase;
7[c]	a first digital receiver producing a first feedback signal in response to
/[0]	the RF predistorted signal from said I/Q modulator;
7[1]	
7[d]	a second digital receiver producing a second feedback signal in
	response to the RF amplified output signal from the power amplifier;
7[e]	a control module receiving said first and second feedback signals from
	said first and second digital receivers; said control module being so
	configured as to model the power amplifier in response to the first and
	second feedback signals and to update said amplitude and phase look-
	up tables of said distorting generator in response to a dynamic
	modeling of the power amplifier;
7[f]	wherein said look-up tables of said distorting generator are indexed by
	data from a third digital receiver that down-converts the signal to be
	transmitted to baseband.
8	An adaptive device as recited in claim 7, wherein the data from said
	third digital receiver is supplied to said control module that indexes
	said distorting generator accordingly.
<u> </u>	sura distorting generator accordingry.

9[pre]	An adaptive device for predistorting an RF modulated signal to be
	transmitted, supplied by a signal source to an input of a power
	amplifier having an output for delivering an amplified output signal,
	said adaptive device comprising:

0[]	an I/O madulator intermaged between the signal secures and the input of
9[a]	an I/Q modulator interposed between the signal source and the input of
0.51.7	the power amplifier;
9[b]	a distorting generator including predistortion amplitude and phase
	look-up tables; said distorting generator controlling said I/Q modulator
	to predistort the RF modulated signal to be transmitted in amplitude
	and in phase;
9[c]	a first digital receiver producing a first feedback signal in response to
	the RF predistorted signal from said I/Q modulator;
9[d]	a second digital receiver producing a second feedback signal in
	response to the RF amplified output signal from the power amplifier;
9[e]	a control module receiving said first and second feedback signals from
	said first and second digital receivers; said control module being so
	configured as to model the power amplifier in response to the first and
	second feedback signals and to update said amplitude and phase look-
	up tables of said distorting generator in response to a dynamic
	modeling of the power amplifier,
9[f]	wherein said control module is so configured as to update said
> [-]	amplitude and phase look-up tables when an adjacent channel power
	ratio (ACPR) measurement indicates that the predistortion made by
	said predistorting generator is not adequate to meet predetermined
10	ACPR standards.
10	An adaptive device as recited in claim 9, wherein said ACPR
	measurement is done via said second digital receiver that includes a
	first channel tuned to a mean frequency and a second channel that is
	tuned to a predetermined offset frequency, said ACPR measurement
	including comparing an average power at the means frequency and at
	the predetermined offset frequency.

11[pre]	An adaptive device for predistorting an RF modulated signal to be
	transmitted, supplied by a signal source to an input of a power
	amplifier having an output for delivering an amplified output signal,
	said adaptive device comprising:
11[a]	an I/Q modulator interposed between the signal source and the input of
	the power amplifier;
11[b]	a distorting generator including predistortion amplitude and phase
	look-up tables; said distorting generator controlling said I/Q modulator
	to predistort the RF modulated signal to be transmitted in amplitude
	and in phase;

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11[c]	a first digital receiver producing a first feedback signal in response to
	the RF predistorted signal from said I/Q modulator;
11[d]	a second digital receiver producing a second feedback signal in
	response to the RF amplified output signal from the power amplifier;
11[e]	a control module receiving said first and second feedback signals from
	said first and second digital receivers; said control module being so
	configured as to model the power amplifier in response to the first and
	second feedback signals and to update said amplitude and phase look-
	up tables of said distorting generator in response to a dynamic
	modeling of the power amplifier;
11[f]	wherein said control module is further configured as to insert an
	adequate delay between the first feedback signal and the second
	feedback signal.