Unified Design of Dual Mode SWIPT

5.2 GHz External Rectenna

External Rectenna

Adaptive Power Splitter (APS)

Adaptive Reconfigurable Matching Network

RF Switch

RF Energy Harvesting Receiver

EH Path

External VRECT

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RF-DC Converter

Buck-Boost Converter

LDO

Super Capacitor/Battery

VREF

1-bit Quantizer

Self-Generated Power Supply

Coarse Amplitude Path

Fine Amplitude Path

Additional Path

Envelope Detector

VGA1

VGA2

2-bit ADC

Amp. Delay Calibration

Amplitude

Decoders

Rx Data

PAPR Value

PAPR Path

Peak Detector

Peak Value

Phase Delay Calibration

Phase

Tx Data

Average Detector

RMS Value

PAPR Estimator

Back-Scatter Modulation Circuit

Information Decoding (ID) transceiver

Power Management, Digital and Dual Mode Controller (PM & ID Module)
Dual Mode SWIPT IC