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[\[PDF \(194K\)\]](#) [\[References\]](#)**A Newly Designed Resonance Frequency Analysis Device for Dental Implant Stability Detection**[Wei-Jen CHANG^{1\)}](#), [Sheng-Yang LEE^{2\)3\)}](#), [Chen-Che WU^{2\)}](#), [Che-Tong LIN^{4\)}](#), [Yoshimitsu ABIKO^{5\)}](#), [Nobuyuki YAMAMICHI^{5\)}](#) and [Haw-Ming HUANG^{4\)}](#)

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Abstract:

Resonance frequency (RF) analysis technology was used to design a new dental implant stability detector. To calibrate and test the performance of this novel apparatus, *in vitro* and *in vivo* models, respectively, were used. The RF values of the test implants detected using our new device and a commercially available analogous device (Osstell) were compared. Further, implant stability status was also detected clinically using our device at 2, 4, 8, and 12 weeks after surgery. A high correlation was demonstrated between the values measured with the two devices ($y=0.31x-12.45$; $R^2=0.98$, $p<0.05$). In our clinical tests, an initial RF value above 10.0 kHz indicated that the implant was ready to accept functional loading, while values in the 4.0-10.0 kHz range reflected the need for further osseointegration. In conclusion, these results indicated that our new device might be useful in a clinical setting for evaluating the healing status of a placed implant.

Key words:[Resonance frequency](#), [Dental implant](#), [Device](#)



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