

Ground 1820 – Waiver Test Report

FCC-004

Revision	Date	Author
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1 Introduction

This document describes the waiver [1] related test results for Kontur Ground Penetrating Radar (GPR): *Ground 1820*.

1.1 Summary

The *Ground 1820* GPR complies with the extra requirements given in waiver DA 13-1739 [1], namely lowest frequency of operation, highest frequency of operation, notch bands, dwell time and cycle time.

1.2 Document Revision History

Revision	Date	Changes
A	2024-06-17	Initial Revision

1.3 Abbreviations

- CF: Center Frequency
- DUT: device under test
- RBW: resolution bandwidth
- SWT: sweep time
- VBW: video bandwidth

1.4 References

Reference	Title	Revision	Date
1	Waiver DA 13-1739		2013-08-09

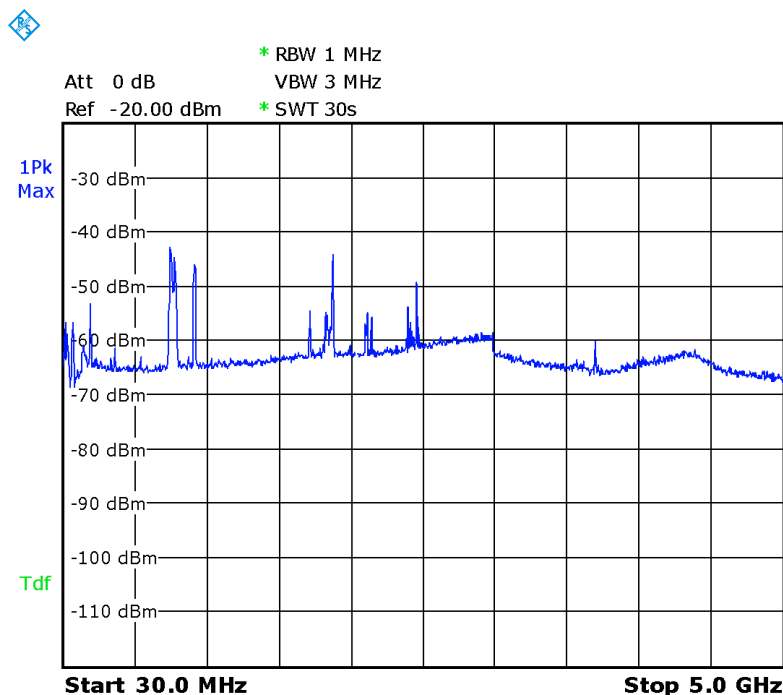
2 Measurement Setup

All waiver related tests can be performed with a spectrum analyzer over-the-air by line of sight coupling between the device under test (DUT) *Ground 1820* and a reference antenna at about 1 m distance.

The equipment used is:

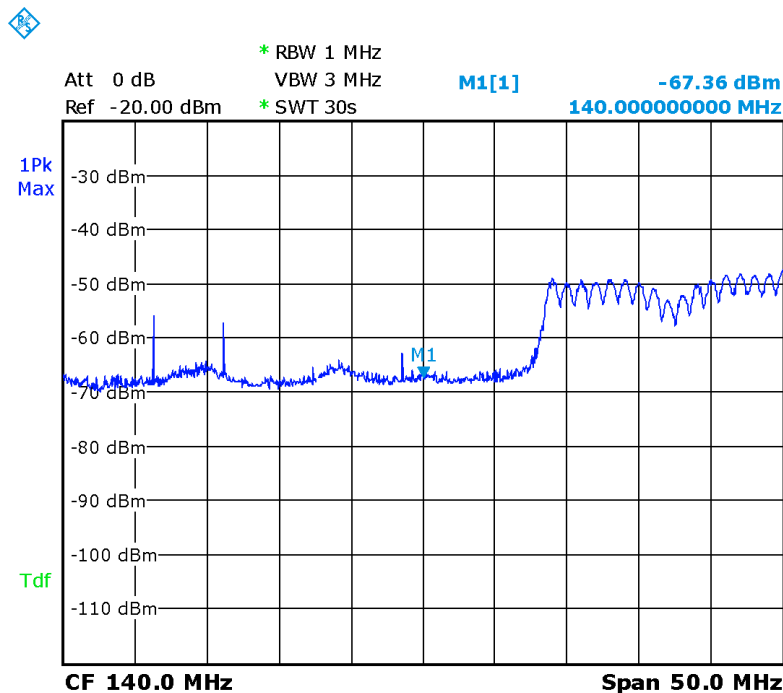
- Spectrum analyzer: Rohde & Schwarz – ZVL13
- Reference antenna: Rohde & Schwarz – HL562 (30 MHz – 3 GHz)
- Coax cable: 6.3 m RG-223

The noise floor of the spectrum analyzer varies between -65 dBm and -60 dBm in the frequency range of interest. Some ambient emissions (e.g. radio, mobile networks, WiFi, BlueTooth) are visible. Moreover, the sensitivity of the spectrum analyzer improves a bit at 3 GHz.



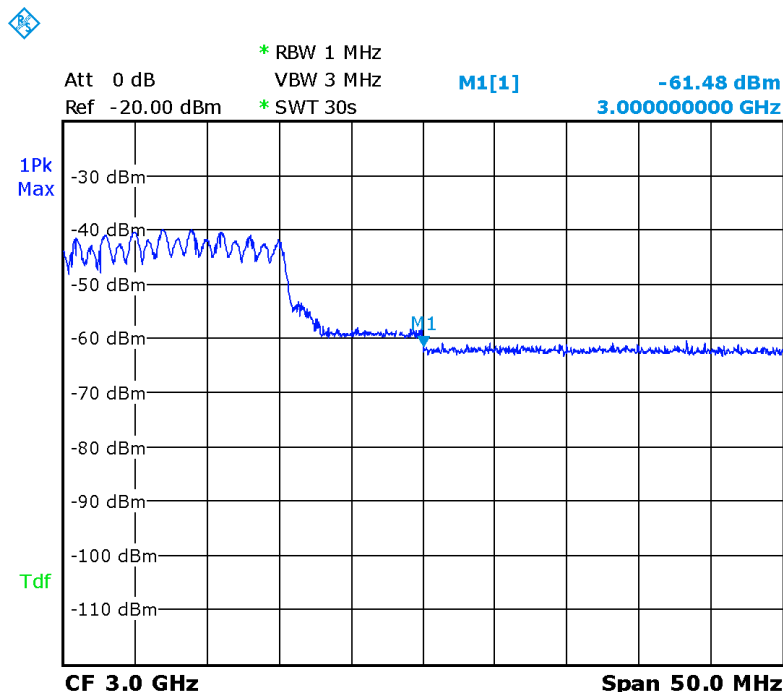
3 Measurements

3.1 Lowest Frequency of Operation



Below 140 MHz only the noise floor and ambient emissions are visible.

3.2 Highest Frequency of Operation

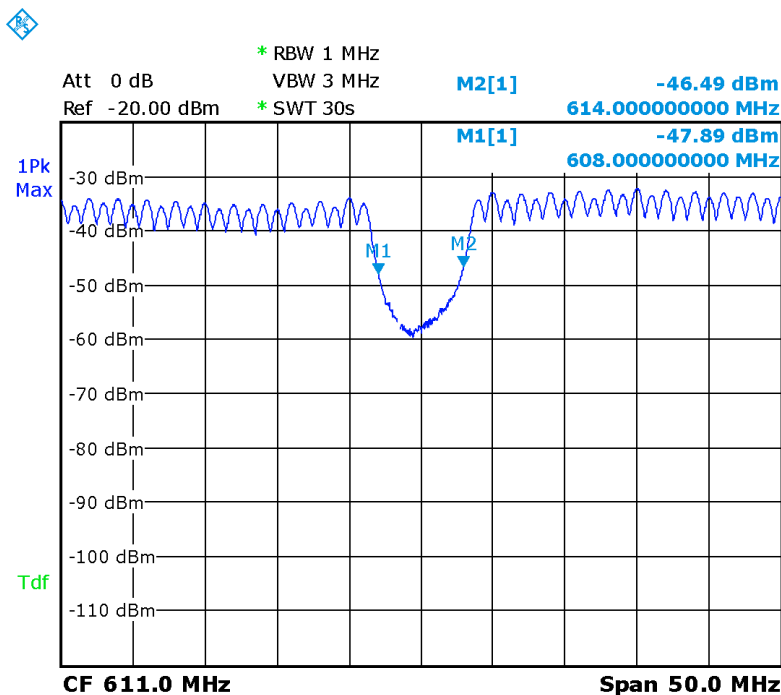


Above 3000 MHz only the noise floor of the measurement instrument is visible.

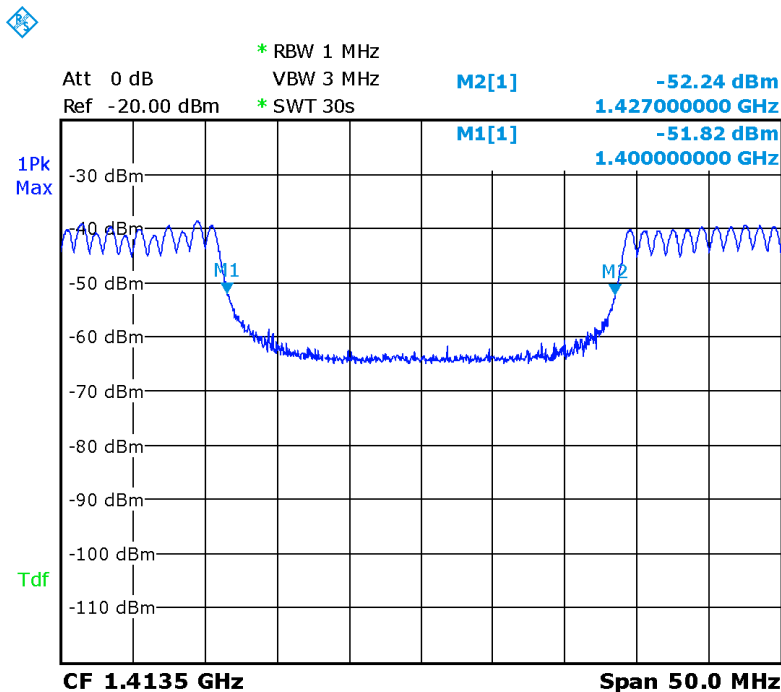
3.3 Notch Bands

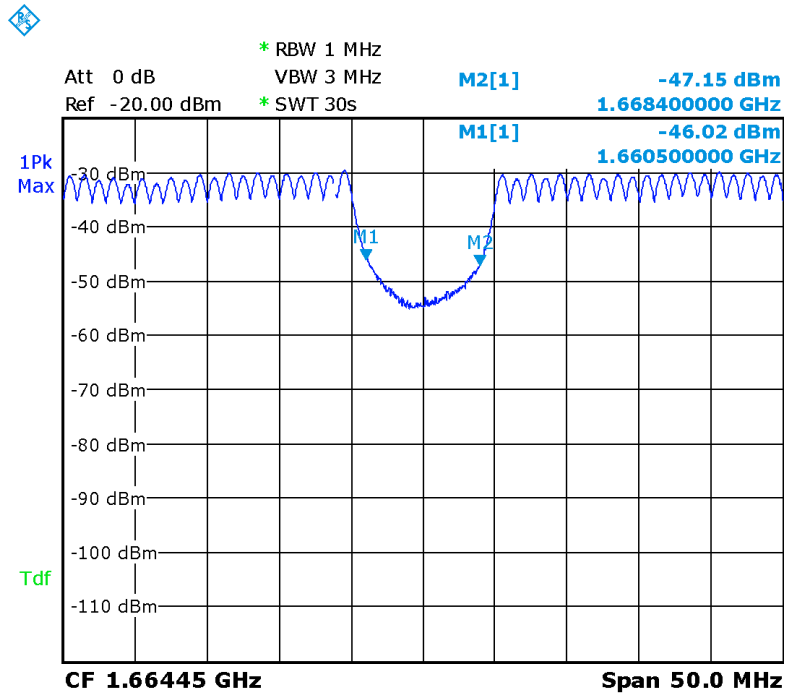
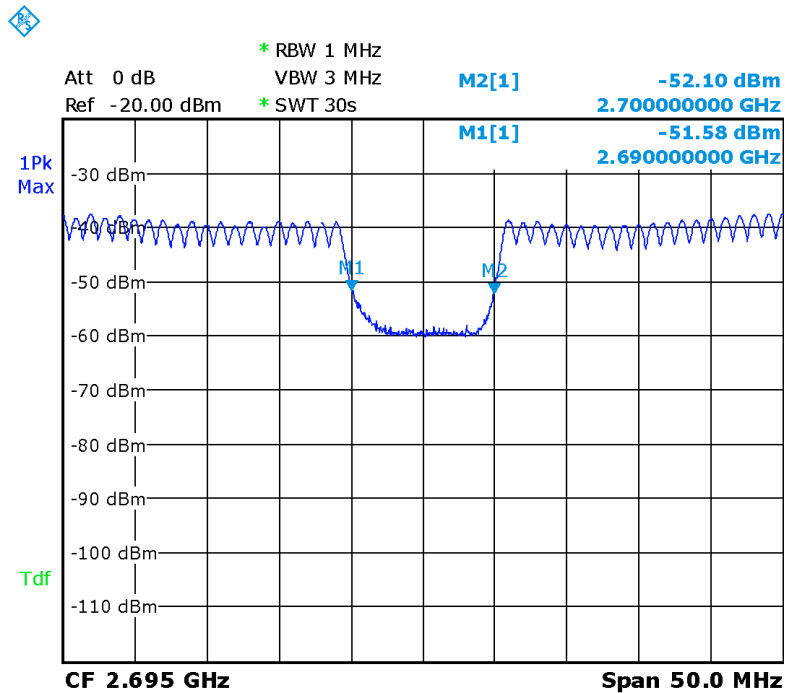
In the following figures, markers are placed at the notch band edges to show that no intentional radiation is produced inside.

3.3.1 Notch Band 608 MHz – 614 MHz

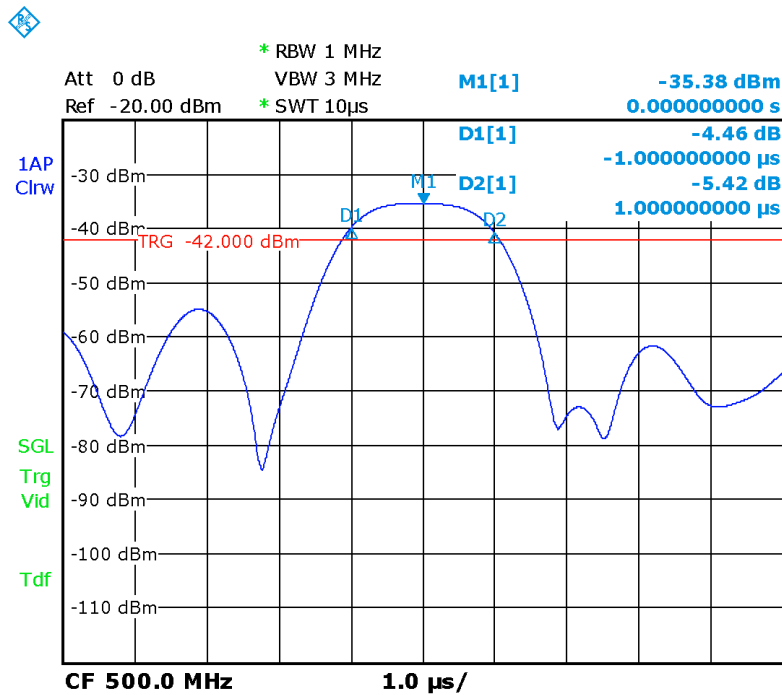


3.3.2 Notch Band 1400 MHz – 1427 MHz



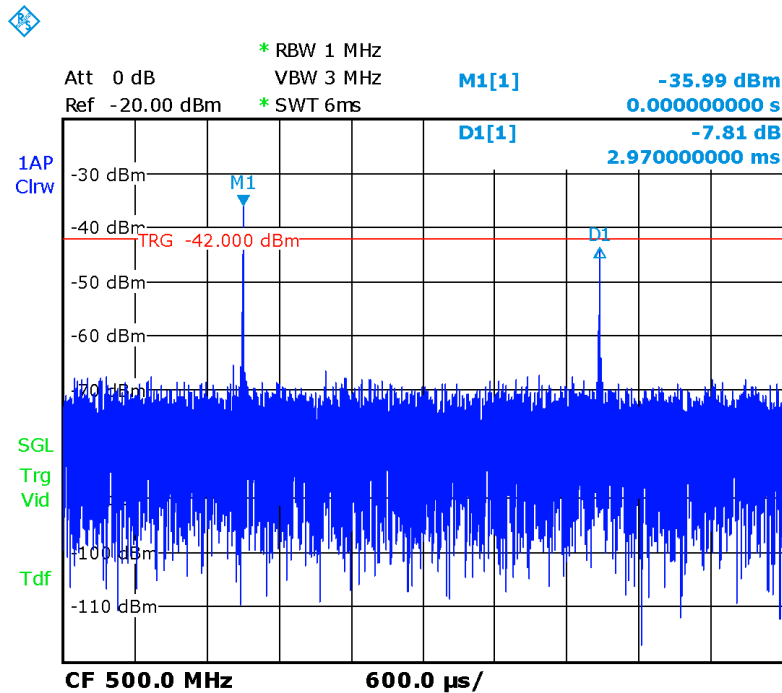
3.3.3 Notch Band 1660.5 MHz – 1668.4 MHz**3.3.4 Notch Band 2690 MHz – 2700 MHz**

3.4 Dwell Time



The flanks of a single frequency step have dropped by about 5 dB with respect to the peak power of the dwell period in a 2 μ s window.

3.5 Cycle Time



The cycle time is about 3 ms, measured in 1 MHz resolution bandwidth.