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DOCUMENT NUMBER	ISSUE	SYSTEM
WP 8250_Total Station - 900294	1.0	Total Station

SUBJECT

RADIATED EMISSION TEST

KEYWORDS

Wireless, emissions, RFI

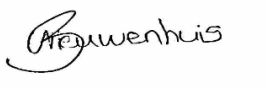
DISTRIBUTION

CONCOR/ OPTIPOWER / SARAO

CONCLUSIONS

When evaluating the risk, the following should be noted:

- The Total Station laser will only be fired when performing measurements.
- The laser fires three times during each measurement cycle for an accurate result.
- The laser firing time occupancy is therefore **96 seconds during the >90 minute period** at each set-up location.

AUTHOR	SIGNATURE
Z Fouché	
DATE	17 June 2021
REVIEWED BY	**SIGNATURE**
B Nieuwenhuis	
DATE	17 June 2021

1. BACKGROUND

Radiated emission tests were done on Total Station at ITC Services Chamber B on 11 June 2021 as motivation information for a SARAO RFI Site Permit. The device was delivered to ITC Services on 10 June 2021.

Tests were done by Z Fouché from ITC Services.

2. AIM

The aim of this work package is to present the radiated emission test results in the 100MHz to 3GHz frequency range.

3. REFERENCE AND APPLICABLE DOCUMENTS

[1] Test Procedure TBD.
[2] CISPR 12 Ed 6.1: Vehicle, boats and internal combustion engines – Radio disturbance characteristics – Limits and methods of measurement for the protection of off-board receivers.
[3] CISPR 32 ED 2.0: Electromagnetic compatibility of multimedia equipment – Emission requirements
[4] CISPR 11 ED 6.1: Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement

4. GLOSSARY OF TERMS

4.1 LIST OF ACRONYMS AND ABBREVIATIONS

CISPR	Comité International Spécial des Perturbations Radioélectriques (**CISPR**; English: International Special Committee on Radio Interference)
EM	Electromagnetic
ITC	Interference Testing and Consultancy
OATS	Open Area Test Site
RFI	Radio Frequency Interference
RFID	Radio Frequency Identification
SARAO	South Africa Radio Astronomy
dVdt	Voltage derivation over time
dIdt	Current derivation over time

5. CRITICAL PARAMETERS

The following parameters are considered critical in terms of permit conditions and restrictions:

a. Wireless communication.
b. High dVdt or dIdt events.
c. Commutating peaks.

6. RESULTS

Table 1: Picture log

6.1 DEVICE INFORMATION

Parameter	Data
Make:	Linertec
Model	LTS-202N
VIN	N/A
Registration number	900294

Table 2: Device Information

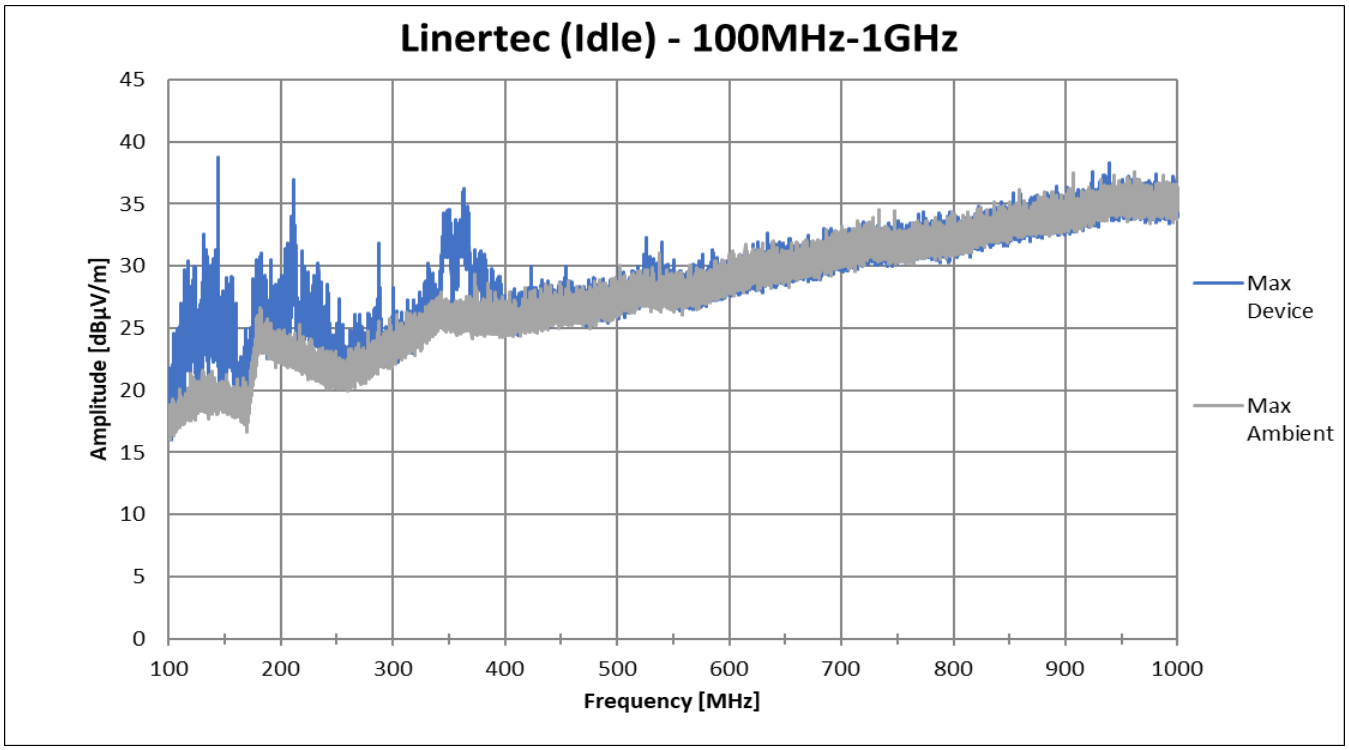
6.2 DEVICE MODE

i. Device switched on and running in normal operating mode.

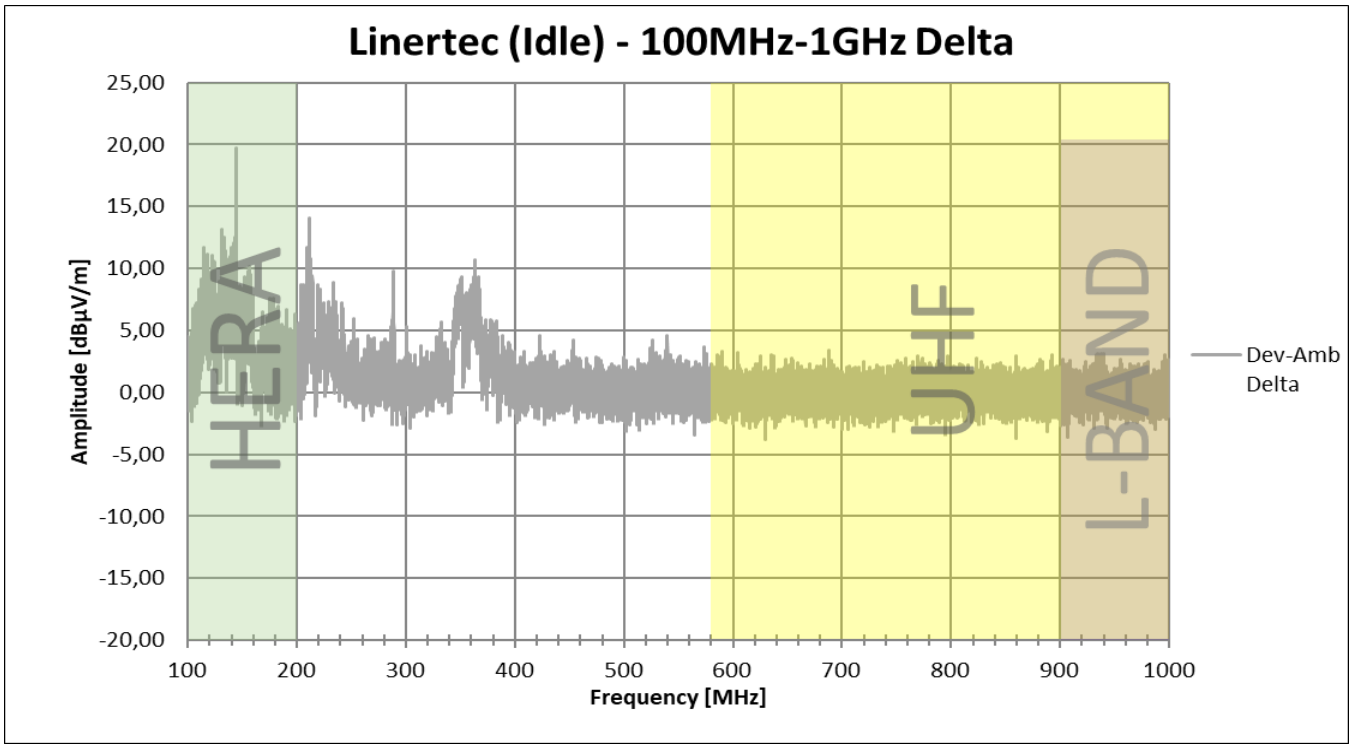
6.3 VISUAL INSPECTION

i. N/A.

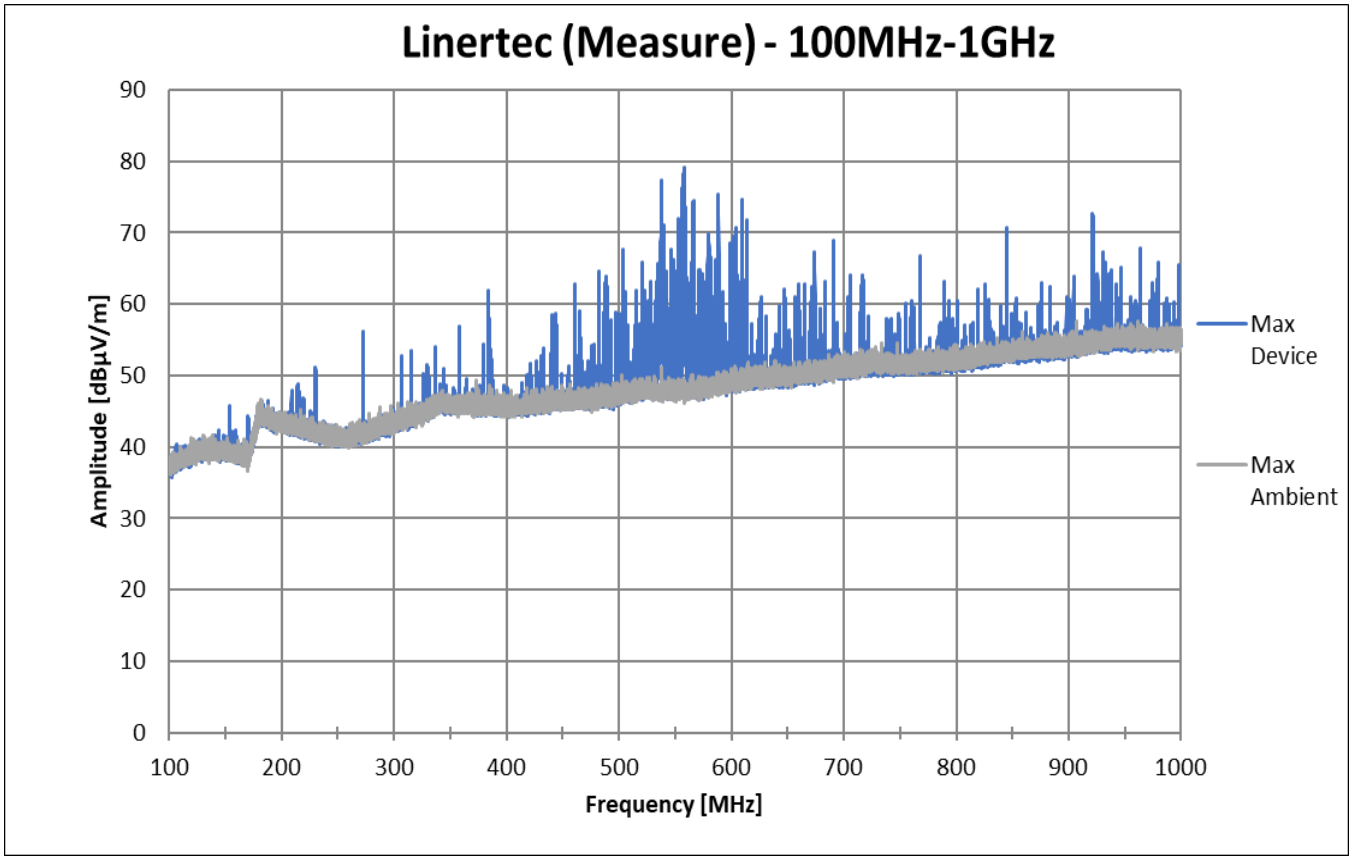
6.4 CONSOLIDATED GRAPH



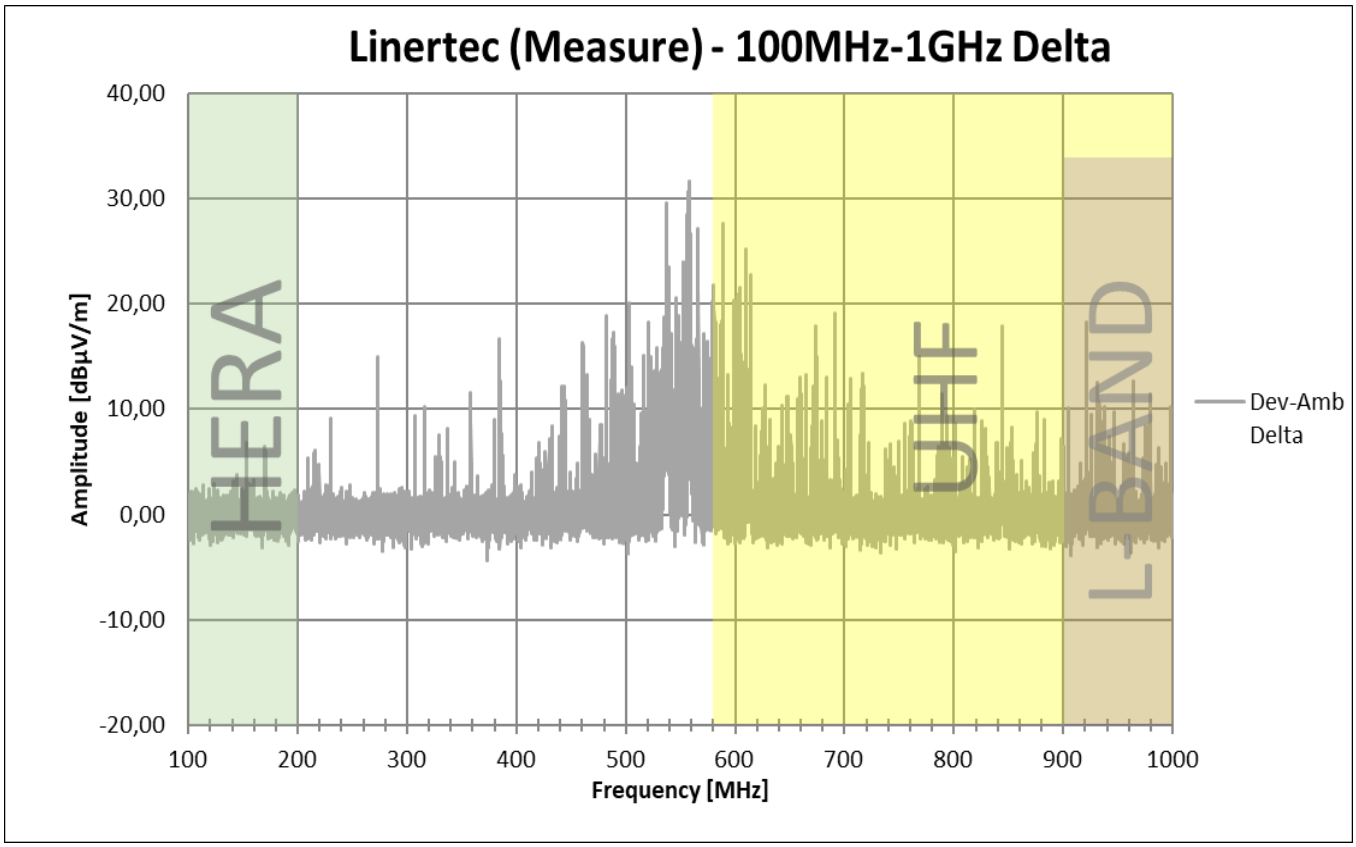
Graph 1: Consolidated graph of radiated emissions < 1GHz while idling



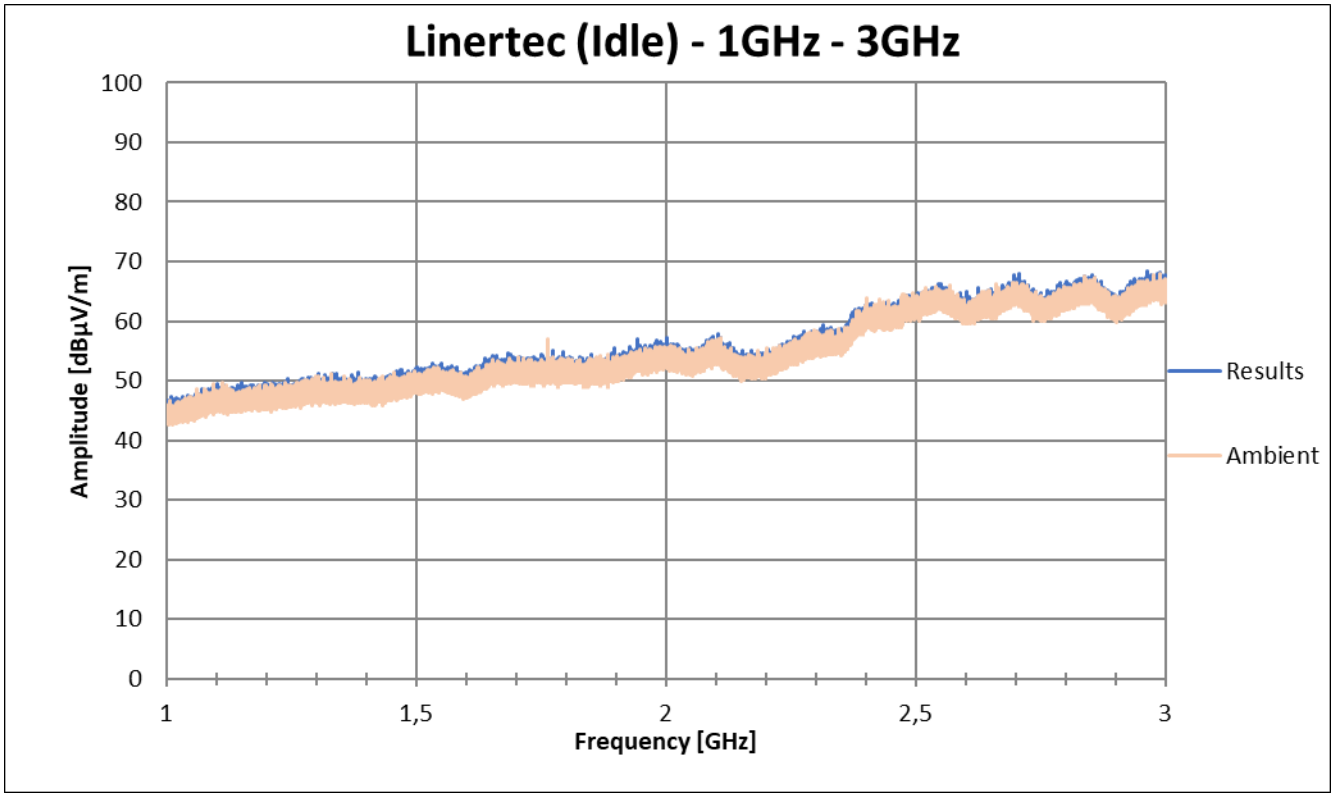
Graph 2: Device and ambient emissions difference < 1GHz while idling



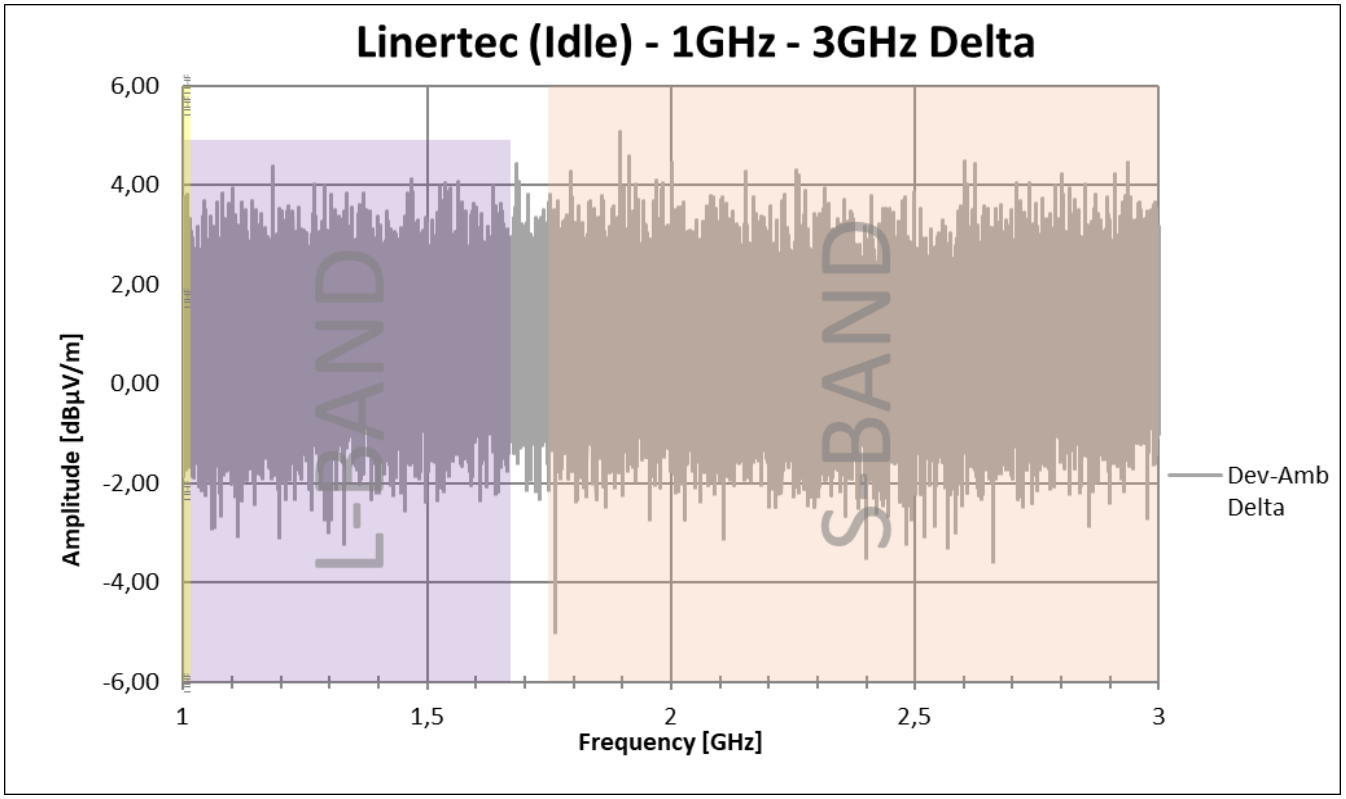
Graph 3: Consolidated graph of radiated emissions < 1GHz while measuring



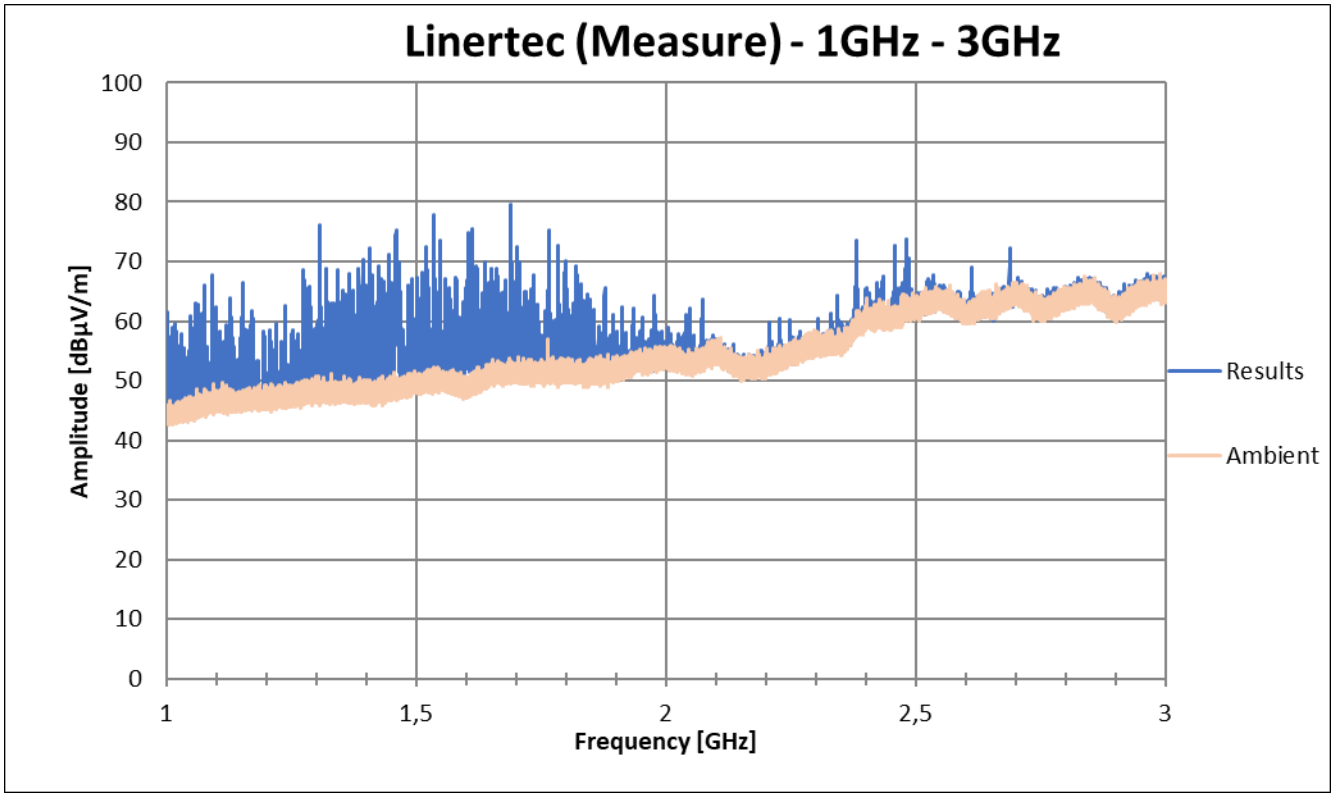
Graph 4: Device and ambient emissions difference < 1GHz while measuring



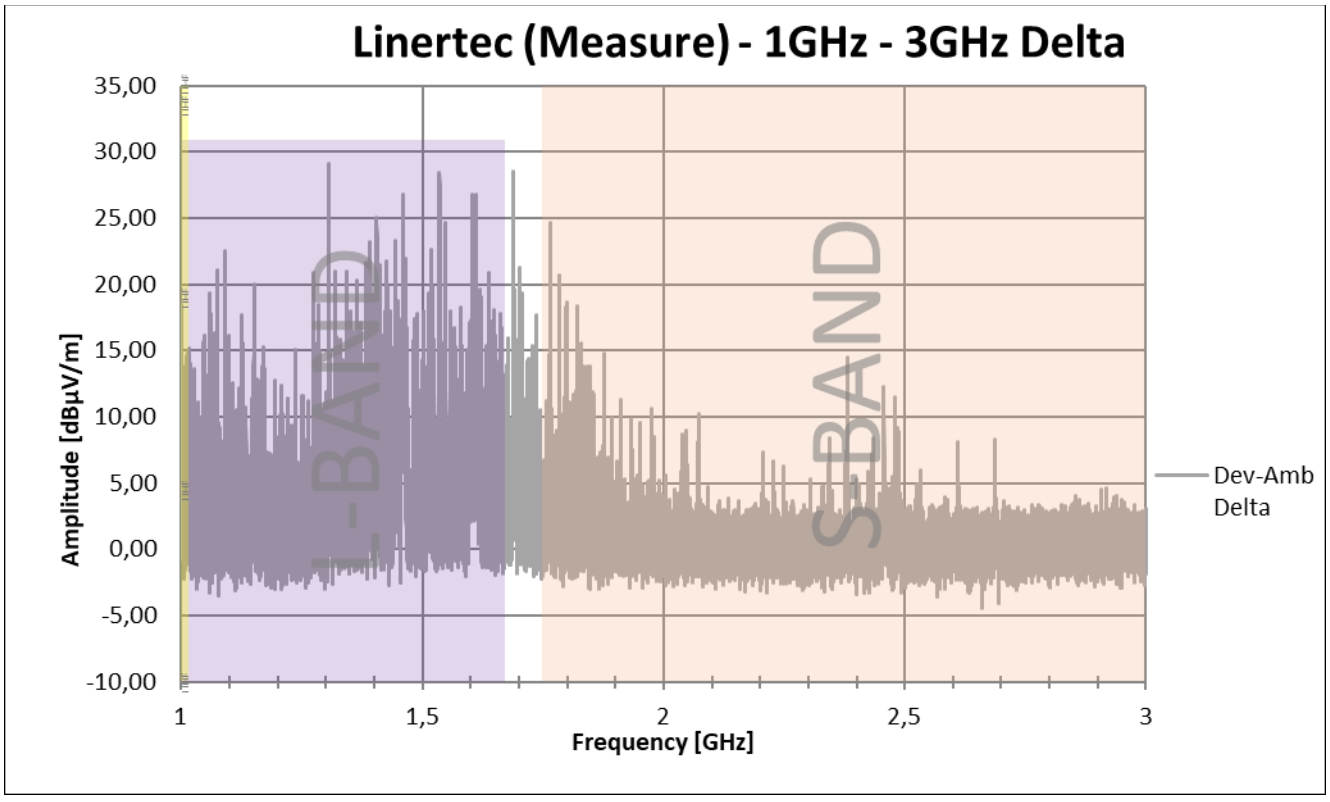
Graph 5: Consolidated graph of radiated emissions > 1GHz while idling



Graph 6: Device and ambient emissions difference > 1GHz while idling



Graph 7: Consolidated graph of radiated emissions > 1GHz while measuring



Graph 8: Device and ambient emissions difference > 1GHz while measuring

6.5 MODIFICATIONS

No modifications were made and no fuses were removed.

7. CONCLUSION

When evaluating the risk, the following should be noted:

- The Total Station laser will only be fired when performing measurements.
- The laser fires three times during each measurement cycle for an accurate result.
- The laser firing time occupancy is therefore 96 seconds during the >90 minute period at each set-up location.

END OF DOCUMENT