

The following are the Sitrans LR260 Duty cycle and the test data were performed with **concrete tank** (CF silo) at St. Mary Cement CO. 400 Waverley Road South, Bowmanville, Ont. L1C 3K3 on 23Aug2007.

1. Duty cycle Class per ETSI 302 372-1 section 8.2

The duty cycle is defined as $D = t_{on} / (t_{on} + t_{off})$

Where:

- t_{on} is the time where the transmitter is active
- t_{off} is the time where the transmitter is switched off

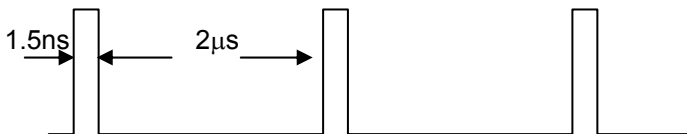
Duty cycle is calculated as follow:

$$\text{Duty Cycle} = 1.5 \text{ ns} / (1.5 \text{ ns} + 2000 \text{ ns}) = 0.00075$$

- $D_x = 0.00075$
- Duty Cycle Ratio = 0.075 %
- Duty Cycle Class = Class 1

Test results: **Pass**

Transmitting diagram:



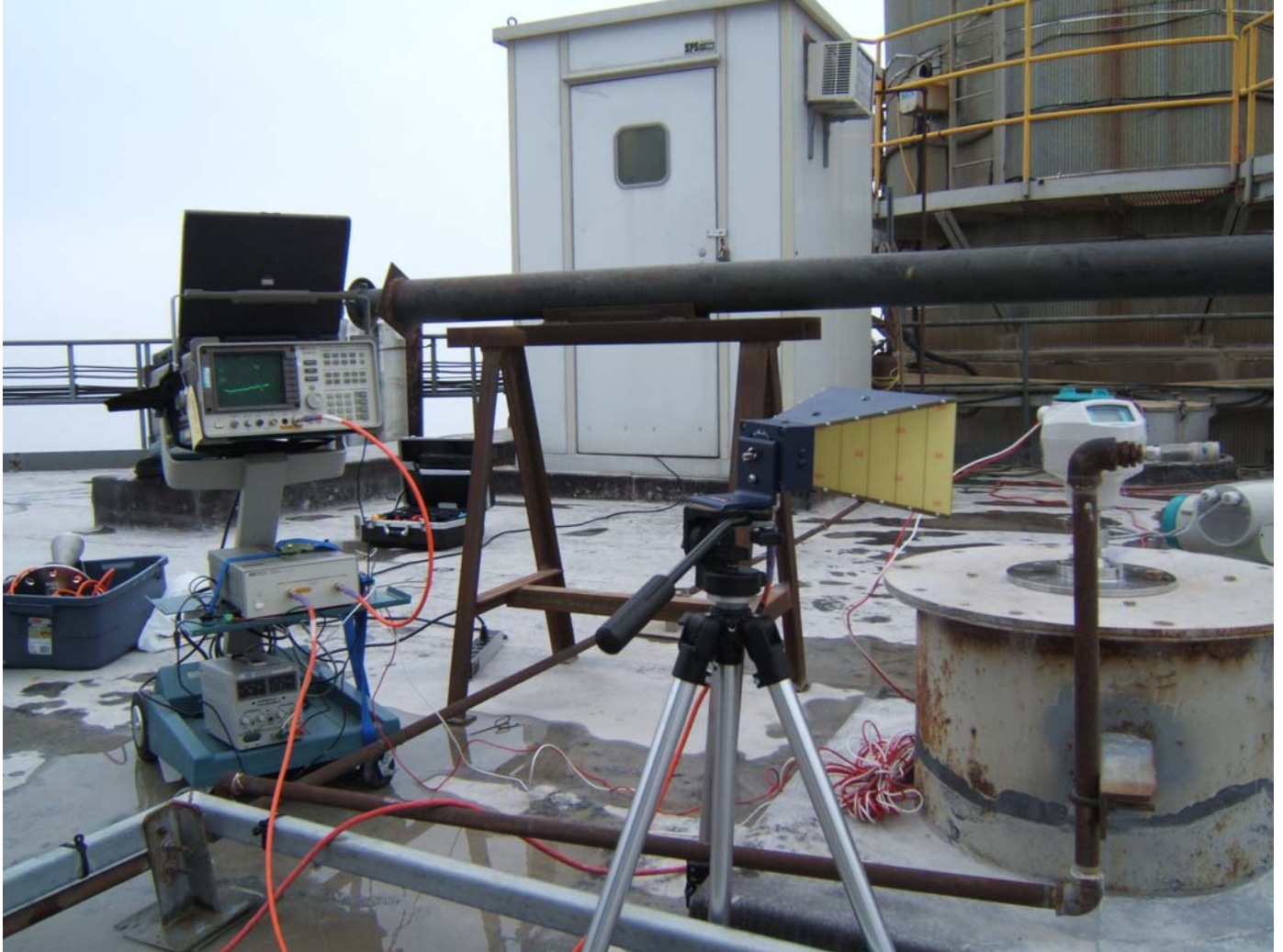
2. Leakage Emission outside the concrete tank enclosure structure					
Test configuration	Tests were performed with concrete tank (CF silo) at St. Mary Cement CO. 400 Waverley Road South, Bowmanville, Ont. L1C 3K3				
Frequency of measurement (GHz)	E-field in 1MHz BW @ 0.3m (dbµV/m)	Antenna polarization (V/H)	Max. emission limits inside the band of operation (dBm)	Max. emission limits outside the band of operation (dBm)	Test result
1 to 18 (1)	No signal	Vertical	< 1 GHz: -51.3 ≥ 1 GHz: -41.3	< 1 GHz: -61.3 ≥ 1 GHz: -51.3	Plot 1
	No signal	Horizontal			
18 to 26.5 (1)	No signal	Vertical			Plot 2
	No signal	Horizontal			
26.5 to 30 (2)	No signal	Vertical			Plot 3
	No signal	Horizontal			
Test results:	Pass				
Comment:	<div>- There is no Leakage Emission inside and outside the band of operation that measure outside the concrete tank enclosure structure</div> <div>- The signals at 1 GHz to 3 GHz in Plot 1 to 18 GHz are ambient noises</div>				

Note:

- (1) Frequency 1 to 18 GHz and 18 to 26.5 GHz tested with amplifier HP 8564E.
- (2) Frequency 26.5 to 30 GHz tested without amplifier HP 8564E, because the amplifier HP 8564E frequency operation range is only rated from 1 to 26.5GHz.

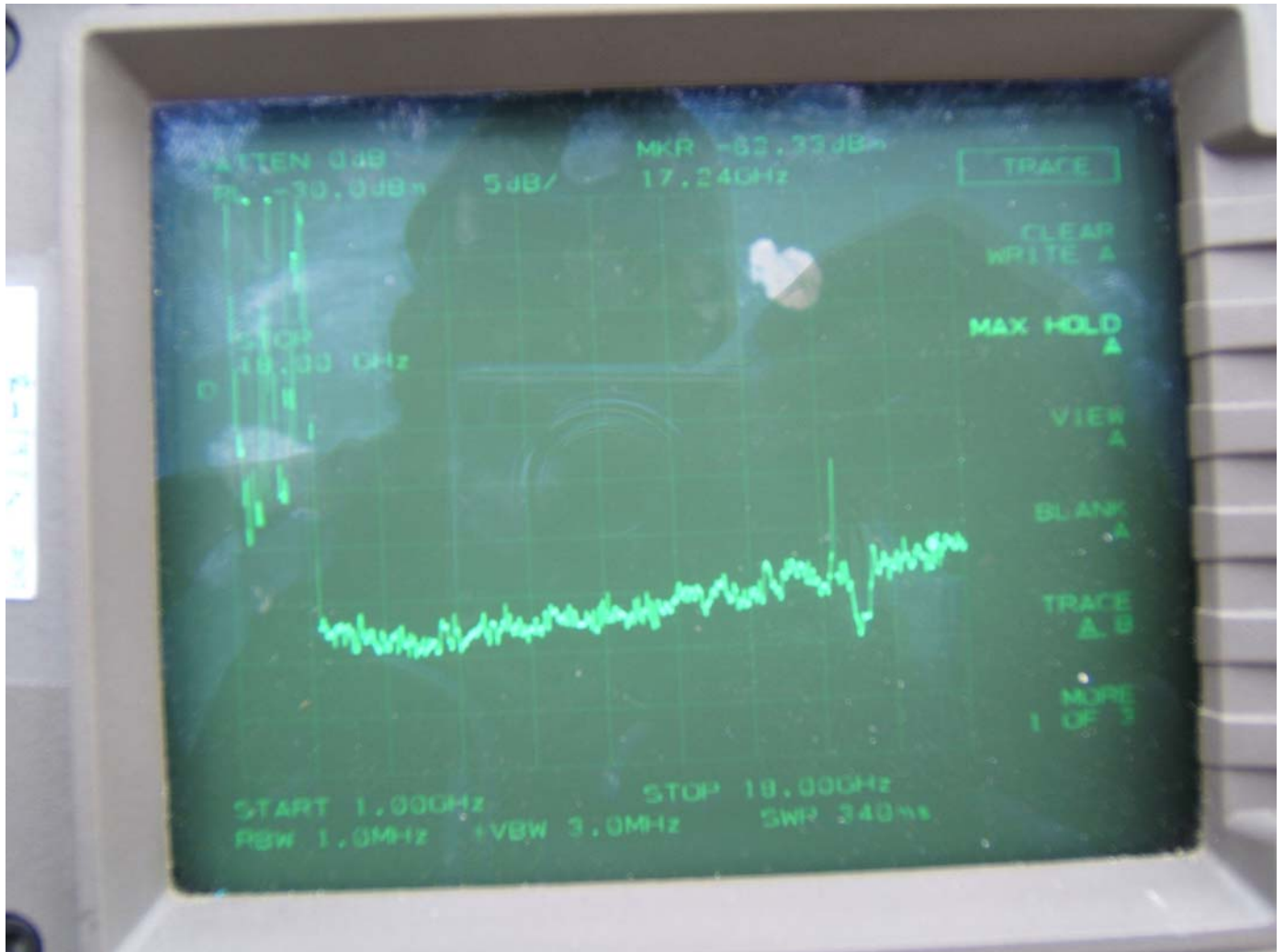
Peripheral equipment used during test:				
	Description	Model	Serial/Asset #	Remark
1	DUT	LR260 Hart	DP2-18	With 4" horn antenna
2	Small Horn antenna	ETS 3116	00027169	Freq. 18 to 40 GHz
3	Large Horn antenna	DRH 0018	980114	Freq. 1 to 18 GHz
4	Amplifier	HP 6449B	3008A01069	Freq. 1 to 26.5 GHz
5	Spectrum analyzer	HP 8564E	52-2011	RSB=1MHz, VBW=3MHz Detector: Peak detection, Trace: Max. Peak hold
7	Concrete tank	CF silo		St. Mary Cement

Test setup photo1: 1-18GHz



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Plot 1: 1-18GHz



Test setup photo 2: 18-26.5GHz



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Plot 2: 18-26.5GHz



Test setup photo 3: 26.5-30GHz



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Plot 3: 26.5-30GHz



Test setup block diagram:

