Plot Number	Description
5.1.b	Middle Channel, 30 - 1000 MHz, 100 kHz resolution
5.2.b	Middle Channel, 1000 - 1930 MHz, 1 MHz resolution
5.3.b	Middle Channel, 1930 - 1990 MHz, 1 MHz resolution
5.4.b	Middle Channel, 1990 – 10000 MHz, 1 MHz resolution
5.5.b	Middle Channel, 10 –20 GHz, 1 MHz resolution

Plot Number	Description
5.1.c	High Channel, 30 - 1000 MHz, 100 kHz resolution
5.2.c	High Channel, 1000 - 1930 MHz, 1 MHz resolution
5.3.c	High Channel, 1930 - 1990 MHz, 1 MHz resolution
5.4.c	High Channel, 1990 – 10000 MHz, 1 MHz resolution
5.5.c	High Channel, 10 –20 GHz, 1 MHz resolution

In addition, the 26-dB bandwidth measurements were performed (see plots ## 6.1, 6.2, 6.3 for low, middle, and high channels). See also plot # 6.4 for 6-dB bandwidth for middle channel.

5.4 Test instrumentation

Tektronix 2784 Spectrum Analyzer
HP 6-dB Attenuator
HP 7470A Plotter

6 RADIATED SPURIOUS EMISSIONS

6.1 Test Description

Parameter:	FCC §2.1053
Requirement:	FCC § 24.238
Emission Attenuation:	At least 43 + 10Log (P in Watts) dB below the transmitter Power on any frequency outside a licensee's frequency block.

6.2 Test Procedure

The dummy load was connected to the transmitter output. The transmitter was placed on a wooden turntable.

The frequency range up to tenth harmonic of each of the three fundamental frequencies (low, middle, and high channels) was investigated.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT.

At each spurious emission frequency the EIRP was measured by the substitution method using a generator and horn antenna. The spurious emissions attenuation was calculated as the difference between EIRP in dBm at the fundamental frequency (See Section 3) and at the spurious emissions frequency.

The radiated emissions from digital parts and receiver local oscillator were measured as well.

6.3 Test Results

On the following pages 13 – 15, the Field Strength of the spurious emission is presented. As the measured level is more than 20 dB below the equivalent radiated power level of –13 dBm (82.3 dBuV/m), the measurements by substitution method were performed for second harmonic only. The results are presented on the page 15.

6.4 Test instrumentation

EMCO 3115 Horn antenna
EMCO 3160-9 Horn antenna
HP 8566B Spectrum Analyzer
Preamplifiers: CDI P1000, AFT18855, ACO/400

Job No.:	J20037661
Company:	Exio
Model:	MWIBS1900
Test Mode:	Tx @ Low Channel: 1931.25 MHz
Engineer:	Ollie Moyrong
Date:	February_6_2001

Spurious Harmonic Attenuation

Frequency (MHz)	Antenna Location (m)	Antenna Polariz. (H/V)	Reading (dBuV)	Antenna Factor (dB/m)	Preamp (dB)	Correction Factor (dB)	Cable Loss (dB)	Corrected Reading (dBuV/m)	Spurious Attenuation (dB)	Margin (dB)
1931.3	3.0	V	-	-	-	-	-	108.5	-	-
3862.5	3.0	V	22.7	34.0	0.0	0.0	6.4	63.1	45.4	-19.2
5793.8	3.0	V	32.0	36.3	-28.3	0.0	8.3	48.3	60.2	-34.0
7725.0	3.0	V	19.7	37.9	-27.5	0.0	10.7	40.8	67.7	-41.5
9656.3	3.0	V	19.4	38.8	-27.3	0.0	11.5	42.4	66.1	-39.9
11587.5	3.0	V	28.9	40.7	-33.0	0.0	5.8	42.4	66.1	-39.9
13518.8	3.0	V	29.1	40.5	-33.0	0.0	6.2	42.8	65.7	-39.5
15450.0	3.0	V	28.0	41.7	-33.0	0.0	6.9	43.6	64.9	-38.7
17381.3	3.0	V	27.0	44.3	-33.0	0.0	7.4	45.7	62.8	-36.6
19312.5	3.0	V	22.3	40.2	-24.0	0.0	7.9	46.4	62.1	-35.9

Spurious emission attenuation limit = 26.2
*: Noise floor

Job No.:	J20037661
Company:	Exio
Model:	MWIBS1900
Test Mode:	Tx @ Mid Channel: 1940.0 MHz
Engineer:	Ollie Moyrong
Date:	February_6_2001

Spurious Harmonic Attenuation

Frequency	Antenna Location	Antenna Polariz.	Reading	Antenna Factor	Preamp	Correction Factor	Cable Loss	Corrected Reading	Spurious Attenuation	Margin
(MHz)	(m)	(H/V)	(dBuV)	(dB/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dB)	(dB)
1940.0	3.0	V	-	-	-	-	-	109.2	-	-
3880.0	3.0	V	16.7	34.0	0.0	0.0	6.4	57.1	52.1	-25.2
5820.0	3.0	V	20.2	36.3	-28.3	0.0	8.3	36.5	72.7	-45.8
7760.0	3.0	V	19.1	37.9	-27.5	0.0	10.7	40.2	69.0	-42.1
9700.0	3.0	V	19.1	38.8	-27.3	0.0	11.5	42.1	67.1	-40.2
11640.0	3.0	V	29.9	40.7	-33.0	0.0	5.8	43.4	65.8	-38.9
13580.0	3.0	V	29.4	40.5	-33.0	0.0	6.2	43.1	66.1	-39.2
15520.0	3.0	V	28.2	41.7	-33.0	0.0	6.9	43.8	65.4	-38.5
17460.0	3.0	V	26.9	44.3	-33.0	0.0	7.4	45.6	63.6	-36.7
19400.0	3.0	V	22.3	40.2	-24.0	0.0	7.9	46.4	62.8	-35.9

Spurious emission attenuation limit = 26.9
*: Noise floor

Cisco Systems Inc. Model: MWIBS-1900
FCC ID:LDKMWIBS1900

Date of Test: January 20-February 17, 2000

Job No.:	J20037661
Company:	Exio
Model:	MWIBS1900
Test Mode:	Tx @ High Channel: 1948.75 MHz
Engineer:	Ollie Moyrong
Date:	February_6_2001

Spurious Harmonic Attenuation

Frequency	Antenna Location	Antenna Polariz.	Reading	Antenna Factor	Preamp	Correction Factor	Cable Loss	Corrected Reading	Spurious Attenuation	Margin
(MHz)	(m)	(H/V)	(dBuV)	(dB/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dB)	(dB)
1948.8		V	-	-				108.6	-	
3897.6		V	16.5	34.0	0.0	0.0		56.9	51.7	
5846.4		V	20.3	36.3	-28.3	0.0				
7795.0		V	19.2	37.9	-27.5	0.0				
9743.8		V	19.1	38.8	-27.3	0.0				
11692.5		V	29.0	40.7	-33.0	0.0				
13641.3		V	29.3	40.5	-33.0	0.0				
15590.0		V	27.8	41.7	-33.0					
17538.8		V	26.5	44.3	-33.0		7.4			
		V	22.3	40.2	-24.0		7.9			

Spurious emission attenuation limit = 26.3
*: Noise floor

Spurious Emission Attenuation performed by the substitution method

Frequency MHz	Field Strength measured from EUT dBuV/m	Generator output power required to produce the same FS dBm	EIRP of the generator and Tx antenna * dBm	Spurious Emission Attenuation ** dB	Limit for Spurious Attenuation dB	Margin dB
3862.5	63.1	-43.5	-35.8	55.5	32.7	-22.8
3880.0	57.1	-48.9	-41.2	60.9	32.7	-28.2
3897.6	56.9	-49.7	-42.0	60.6	32.7	-27.9

* the gain is equal 7.7 dBi
for EIRP at a fundamental frequency, see section 3.0

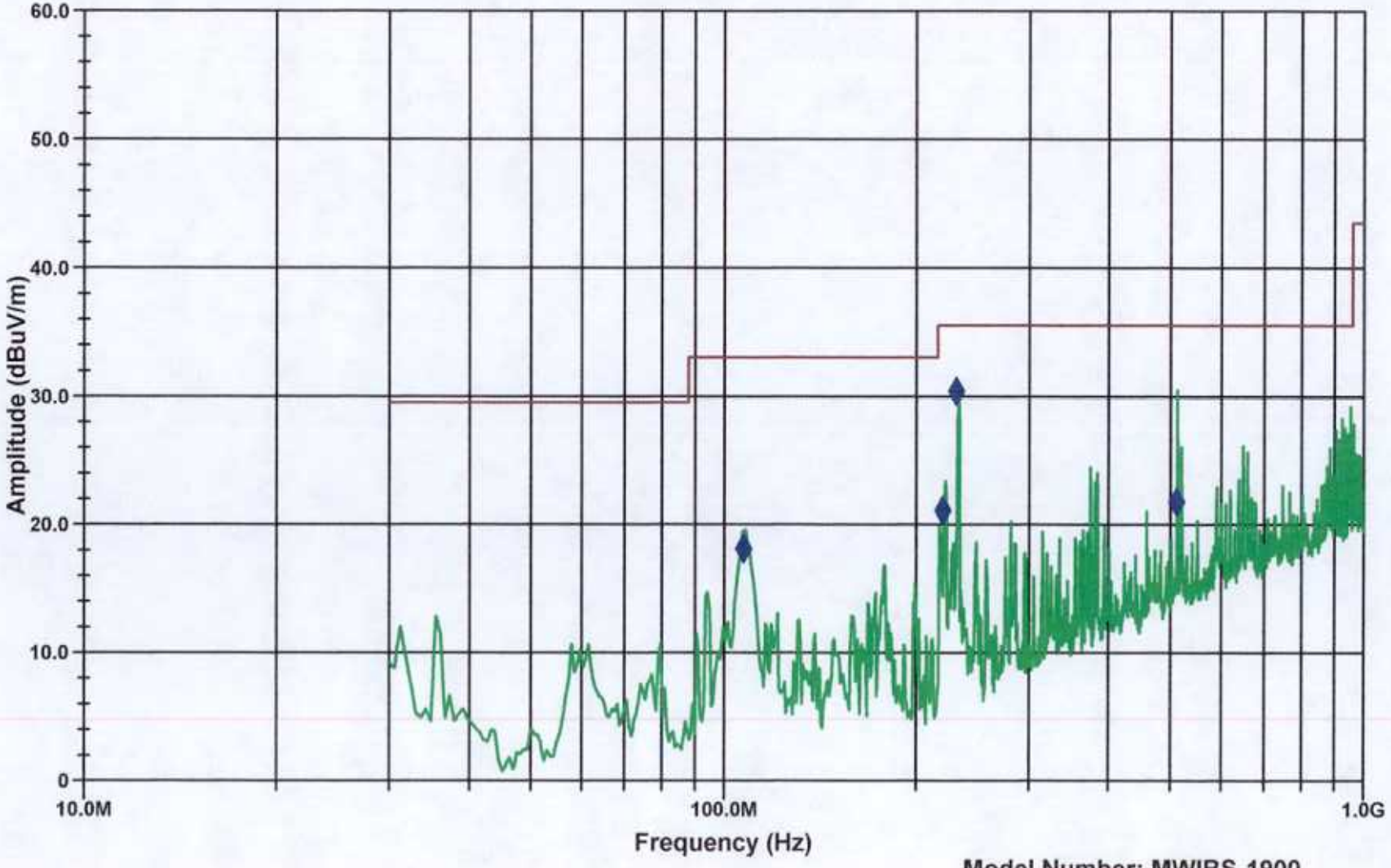
Test Mode: Receive
Temperature: 21.9 C
Humidity:25.8 %

Intertek Testing Services

Radiated Emissions 30 MHz - 1000 MHz

FCC Part 15 Class B (Horizontal)

Limit at 10 m
Peak Scan Horizontal
Quasi Peak Level



Model Number: MWIBS-1900

Operator: James Plotner

Company: EXIO Communications

09:01:31 AM, Friday, February 02, 2001

ITS Job Number: J20037661

Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Horizontal)

Operator: James Plotner

Model Number: MWIBS-1900
ITS Job Number: J20037661
Company: EXIO Communications

09:01:28 AM, Friday, February 02, 2001

	1	2	3	4	5	6	7
Frequency	QP Level	Limit@10m	QP Margin	Raw	Antenna	Cable	Preamp
MHz	(dBuV/m)		(dB)	(dBuV)	(dB)	(dB)	(dB)
107.313 MHz	18.1	33.0	-14.9	40.4	6.2	1.3	32.7
219.9938 MHz	21.1	35.5	-14.4	39.6	10.4	1.8	33.6
230.9936 MHz	30.4	35.5	-5.1	48.7	10.5	1.9	33.7
511.1925 MHz	21.8	35.5	-13.7	30.6	18.3	3.2	33.4

Test Mode: Receive
Temperature: 21.9 C
Humidity:25.8 %

Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (Pk-Horizontal)

Operator: James Plotner

Model Number: MWIBS-1900
ITS Job Number: J20037661
Company: EXIO Communications

08:15:32 AM, Friday, February 02, 2001

	1	2	3	4	5	6	7
Frequency	Pk Level	Limit@10m	Pk Margin	Raw	Antenna	Cable	Preamp
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB)	(dB)	(dB)
222.1812 MHz	23.4	35.5	-12.1	41.8	10.4	1.8	33.7
233.0938 MHz	30.0	35.5	-5.5	48.3	10.5	1.9	33.7
374.35 MHz	24.4	35.5	-11.1	37.9	14.3	2.5	33.3
381.0187 MHz	23.3	35.5	-12.2	36.0	15.0	2.6	33.2
384.05 MHz	24.1	35.5	-11.4	36.3	15.4	2.6	33.2
512.575 MHz	30.5	35.5	-5.0	39.1	18.5	3.2	33.4
520.4562 MHz	26.1	35.5	-9.4	34.3	19.1	3.2	33.4
590.7813 MHz	22.9	35.5	-12.6	28.1	21.8	3.4	33.4
639.2813 MHz	23.5	35.5	-12.0	30.1	20.3	3.4	33.4
649.5875 MHz	26.1	35.5	-9.4	32.3	20.8	3.4	33.4
659.2875 MHz	25.6	35.5	-9.9	31.6	21.0	3.4	33.4
747.8 MHz	23.0	35.5	-12.5	28.2	21.9	3.6	33.6
885.4188 MHz	26.0	35.5	-9.5	28.5	23.5	4.2	33.2
904.8187 MHz	27.3	35.5	-8.2	30.6	22.6	4.2	33.1
915.1251 MHz	26.6	35.5	-8.9	29.7	22.7	4.2	33.0
924.825 MHz	28.2	35.5	-7.3	31.5	22.5	4.2	33.0
934.5251 MHz	27.5	35.5	-8.0	30.8	22.4	4.2	32.9
944.8313 MHz	27.1	35.5	-8.4	29.7	23.0	4.2	32.8
954.5313 MHz	29.2	35.5	-6.3	31.4	23.4	4.2	32.8
964.2313 MHz	27.8	43.5	-15.7	30.3	23.1	4.2	32.7

Test Mode: Receive
Temperature: 21.9 C
Humidity:25.8 %

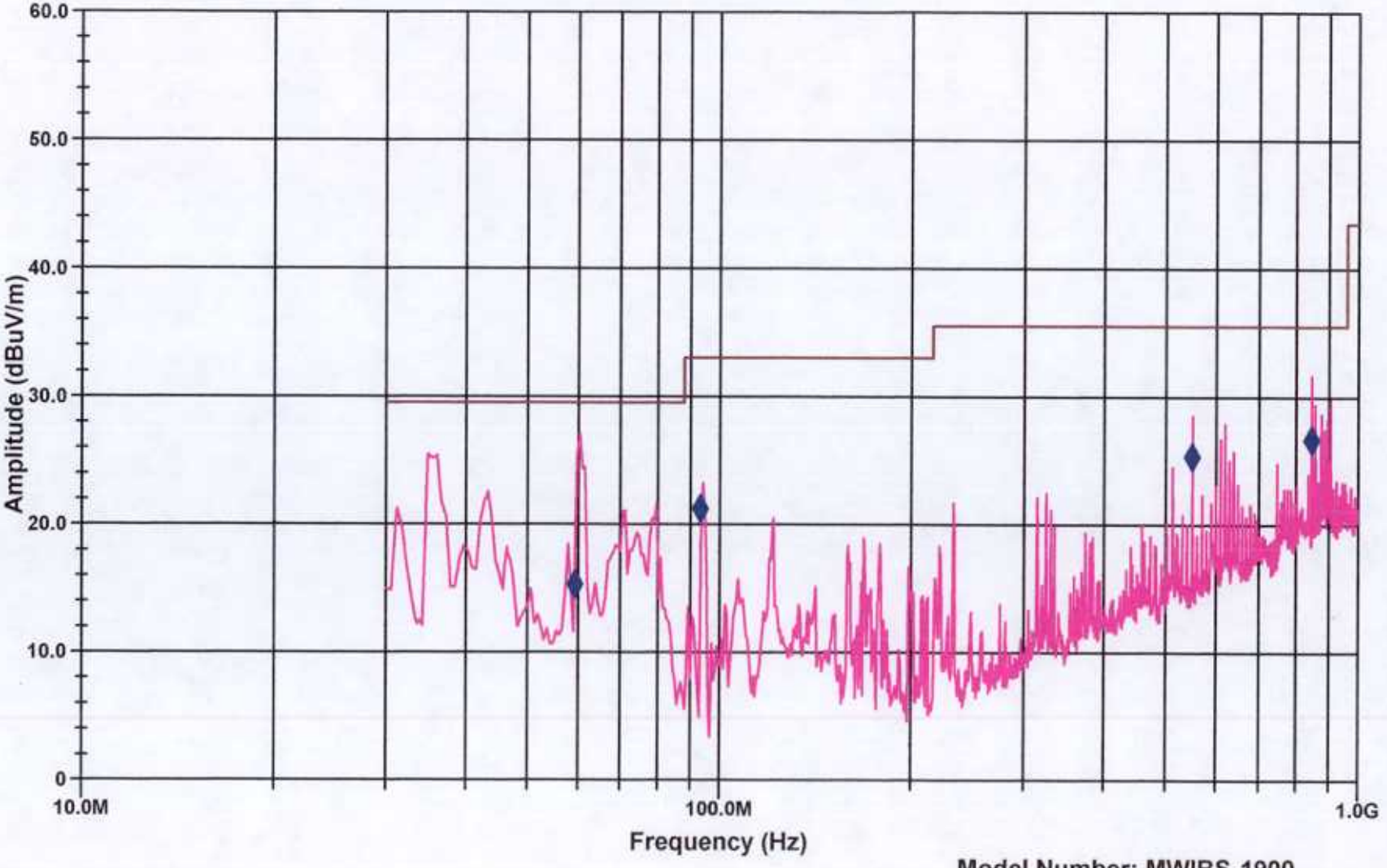
Test Mode: Receive
Temperature: 21.9 C
Humidity:25.8 %

Intertek Testing Services

Radiated Emissions 30 MHz - 1000 MHz

FCC Part 15 Class B (Vertical)

Limit at 10 m
Peak Scan Vertical
Quasi Peak Level



Model Number: MWIBS-1900

Operator: James Plotner

Company: EXIO Communications

09:10:51 AM, Friday, February 02, 2001

ITS Job Number: J20037661

Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Vertical)

Operator: James Plotner

Model Number: MWIBS-1900
ITS Job Number: J20037661
Company: EXIO Communications

February 02, 2001

	1	2	3	4	5	6	7
Frequency	QP Level	Limit@10m	QP Margin	Raw	Antenna	Cable	Preamp
MHz	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB)	(dB)	(dB)
59.313 MHz	15.3	29.5	-14.2	40.8	3.2	0.7	32.4
93.3173 MHz	21.2	33.0	-11.8	43.6	6.1	1.1	32.6
550.515 MHz	25.4	35.5	-10.1	34.0	18.7	3.2	33.6
845.42 MHz	26.7	35.5	-8.8	30.4	22.7	4.2	33.6

Test Mode: Receive
Temperature: 21.9 C
Humidity:25.8 %