

*FCC PART 15, SUBPART C
TEST METHOD: ANSI C63.4-1992
TEST REPORT*

for

Wireless Tire Pressure Sensor
Model PNZ1101T

OEM Manufacture:
Xilor Inc
1400 Liberty St.
Knoxville, TN 37909
(865) 546-9863

DATE: 3-15-2002

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REPORT SUMMARY

This is an electromagnetic emission test report. The test report is based on testing performed by Philips Testing Lab. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test are within the specification limits defined by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231(e).

Test Lab:	Philips Testing 3029 Gov. John Sevier Hwy. Knoxville TN 37914 FCC Reg.# 90875 (exp. 1/28/03) NVLAP# 200409-0 exp. (6/30/02) (DBA Philips Consumer Electronics)
Device(s) Tested:	Wireless Tire Pressure Sensor
Model or P/N(s):	Model PNZ1101T
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Xilor Inc 1400 Liberty St. Knoxville TN 37909
Test Date:	3-04-2002
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart C, Sections 15.205, 15.209, and 15.231
Test Procedure:	ANSI C63.4: 1992
Test Deviation:	The test procedure was not deviated from during testing.

SUMMARY OF TEST RESULTS	
Conducted RF Emissions	This test was not performed because the EUT runs off 3-volt lithium coin cells only and cannot be powered by any device that runs off of the AC public mains.
Radiated RF Emissions	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231 (e)
END OF SUMMARY	

Radiated Emissions FCC Section 15.205 and 15.231 (e)

Report	# 20511	Test Distance	3 meters
Date	3/04/2002	Test Conditions	Unit FLAT
EUT	Wireless Tire Pressure Sensor/Transmitter		
Model	PNZ1101T		
Mfg.	Xilor		
FCC ID	PNZ1101T		

Frequency (MHz)	RAW Horiz dBuV	RAW Vert dBuV	Antenna Factor dBuV	Duty Cycle Correction factor	Horiz dBuV	Vert dBuV	Horiz Margin dBuV	Vert Margin dBuV	Limit dBuV
355	53.6	51.54	18.2	-9.94	61.86	59.8	-7.94	-10	69.8
710	14.94	13.84	26.8	-9.94	31.8	30.7	-18	-19.1	49.8
1065	10.44	4.94	31.8	-9.94	32.3	26.8	-17.5	-23	49.8
1420	8.14	10.6	33.9	-9.94	32.1	34.56	-17.7	-15.24	49.8
1775	12.54	11.84	37.1	-9.94	39.7	39	-10.1	-10.8	49.8

Test Equipment Setup/Comments

RBW & VBW= 100 kHz (30 - 1000 MHz)

RBW & VBW= 1MHz (1 - 5 GHz)

MEASUREMENTS WERE TAKEN FROM 30 MHz UP TO THE 10TH HARMONIC

The above RAW readings are Peak readings. Duty cycle correction and antenna factors applied with results under Horiz and Vert.

Radiated Emissions FCC Section 15.205 and 15.231 (e)

Report	# 20511	Test Distance	3 meters
Date	3/04/2002	Test Conditions	Units Rotation arrow DOWN
EUT	Wireless Tire Pressure Sensor/Transmitter		
Model	PNZ1101T		
Mfg.	Xilor		
FCC ID	PNZ1101T		

Frequency (MHz)	RAW Horiz dBuV	RAW Vert dBuV	Antenna Factor dBuV	Duty Cycle Correction factor	Horiz dBuV	Vert dBuV	Horiz Margin dBuV	Vert Margin dBuV	Limit dBuV
355	50.84	53.04	18.2	-9.94	59.1	61.3	-10.7	-8.5	69.8
710	12.64	17.24	26.8	-9.94	29.5	34.1	-20.3	-15.7	49.8
1065	4.94	13.04	31.8	-9.94	26.8	34.9	-23	-14.9	49.8
1420	7.14	15.04	33.9	-9.94	31.1	39	-18.7	-10.8	49.8
1775	8.54	12.04	37.1	-9.94	35.7	39.2	-14.1	-10.6	49.8

Test Equipment Setup/Comments

RBW & VBW= 100 kHz (30 - 1000 MHz)

RBW & VBW= 1MHz (1 - 5 GHz)

MEASUREMENTS WERE TAKEN FROM 30 MHz UP TO THE 10TH HARMONIC

The above RAW readings are Peak readings. Duty cycle correction and antenna factors applied with results under Horiz and Vert.

Radiated Emissions FCC Section 15.205 and 15.231 (e)

Report	# 20511	Test Distance	3 meters
Date	3/04/2002	Test Conditions	Units Rotation arrow UP
EUT	Wireless Tire Pressure Sensor/Transmitter		
Model	PNZ1101T		
Mfg.	Xilor		
FCC ID	PNZ1101T		

Frequency (MHz)	RAW Horiz dBuV	RAW Vert dBuV	Antenna Factor dBuV	Duty Cycle Correction factor	Horiz dBuV	Vert dBuV	Horiz Margin dBuV	Vert Margin dBuV	Limit dBuV
355	52.54	53.74	18.2	-9.94	60.8	62	-9	-7.8	69.8
710	11.84	16.94	26.8	-9.94	28.7	33.8	-21.1	-16	49.8
1065	5.54	13.64	31.8	-9.94	27.4	35.5	-22.4	-14.3	49.8
1420	8.74	15.14	33.9	-9.94	32.7	39.1	-17.1	-10.7	49.8
1775	11.54	12.04	37.1	-9.94	38.7	39.2	-11.1	-10.6	49.8

Test Equipment Setup/Comments

RBW & VBW= 100 kHz (30 - 1000 MHz)

RBW & VBW= 1MHz (1 - 5 GHz)

MEASUREMENTS WERE TAKEN FROM 30 MHz UP TO THE 10TH HARMONIC

The above RAW readings are Peak readings. Duty cycle correction and antenna factors applied with results under Horiz and Vert.

PEAK TO AVERAGE CORRECTION FACTOR

Model PNZ1101T Carrier Frequency 355MHz

Pulse Width (mS)	Number of Pulses	ON Time (mS)
0.22	1	0.22
0.24	1	0.24
0.26	2	0.52
0.64	2	1.28
0.66	2	1.32
0.68	1	0.68
Max on Time (mS)		4.26
Period (mS)		13.38
Duty Cycle (Max on Time / Period)		0.31838565
Correction Factor (dB)	$20\text{Log}(\text{Duty Cycle})$	-9.94

* Time measured w th Tektrix 2230 10 MHz scope

REF 46.0 dB V ATTN 10 dB

LIN AR

OFFSET
-26.0
dB

CORR D

CNT 0

13.38 ms

59'

79'

79'

89'

69'

72'

62'

72'

72'

55.000 0 MHz
RES BW 100 KHz

VAN 100 KHz

SPAN 10.0 KHz
SWP 0 0 msec

REPORT# 20511 OCC. BW
REF 44.2 dB V ATTEN 10 dB

MKR Δ 730 KHZ
-0.05 dB

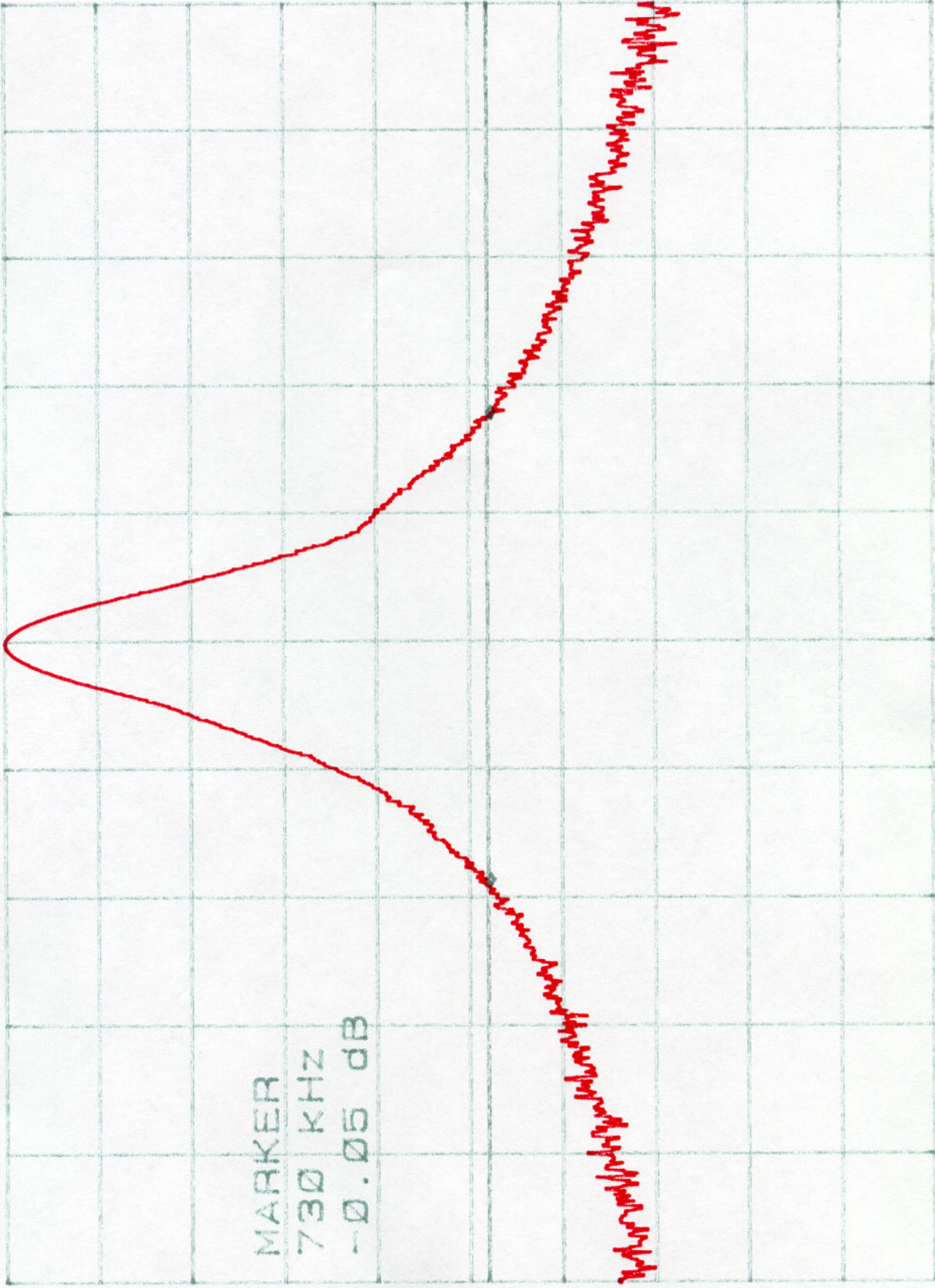
5 dB/

OFFSET
-26.0
dB

DL
18.2
dB V

MARKER
730 KHZ
-0.05 dB

CORR'D



CENTER 355.00 MHZ
RES BW 100 KHZ
SPAN 2.00 MHZ
SWP 20.0 msec
VBW 100 KHZ

Philips Testing Service						
PCEC Asset #	Description	Model	S/N	Mfg.	Cal Date	Cal Due
T29655	Spectrum Analyzer	8568B	2314A02597	HP	03-28-01	03-28-02
T33179	Oscilloscope	2230	25795	Tektronix	04-23-01	07-30-02
T33858	Antenna	3102	9003-2790	EMCO	05-26-01	05-28-02
EX1523	Antenna	3110B	9304-1679	EMCO	08-02-00	11-02-01
EX1664	Antenna	3146	9502-3974	EMCO	08-02-00	11-02-01
T33167	RF Preselector	85685A	2724A00627	HP	12-29-00	12-28-01
T37815	Spectrum Analyzer	8566B	3014A06612	HP	05-17-01	05-17-02
T33168	Quasi Peak Adapter	85650A	2521A01001	HP	12-13-00	12-013-01