

# LTS200

LimitTester **ADVANCED** (BT100 add-on feature)



## Perfect add-on to the BT100 series of Beacon Testers to enhance your manufacturing line or your beacon development tasks!

The LTS200 LimitTester is an add-on feature to the industry standard BT100 series of Beacon Testers. The LTS200 verifies your Beacon test results against a defined set of limits and shows if the beacon passes or fails ... on the fly! A report is generated showing all of the measured parameters, the upper and lower limits, the measured values and a pass or fail indication for each parameter.

- create Limit files using either default values or custom-defined values
- select only the measurements you want to test
- you can generate numerous Limit files to suite your needs
- Test Report is in tabulated html format – interrogate on the fly, import into a spreadsheet, save electronically, or print as-is
- test 15 Hex ID, verify BCH fields
- verify location encoding to user-defined Δd
- automatically determines measurement modes from BT100 settings
- Pass/Fail bit set in html code for your ATE requirements
- re-test previous measurements to different limits

**WS Technologies Inc.** LTS200 Limits Configuration Table  
Version 1.00

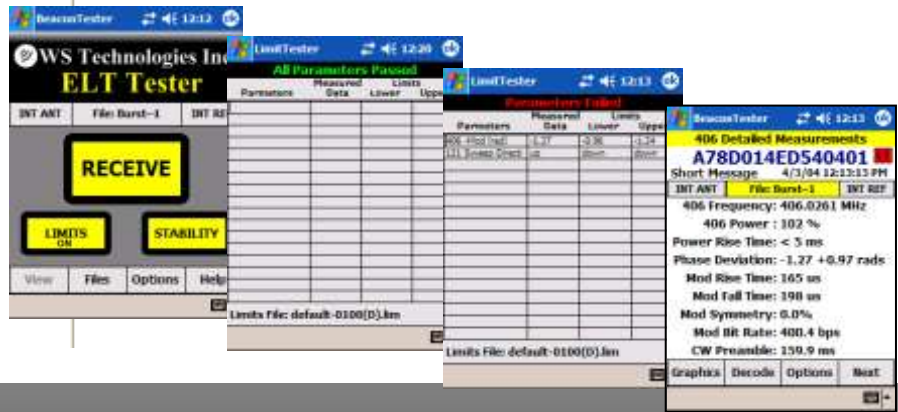
INCLUDE	PARAMETER	UNIT	C/S T.001 Limits	BT100 Uncert	DEFAULT LIMITS (including BT100 Uncert)		USER-DEFINED LIMITS	
					Lower	Upper	Lower	Upper
<b>406 MHz</b>								
<input checked="" type="checkbox"/>	406 Frequency (Int Ref)	Hz	±5000	±425	406019575	406081425	406019575	406081425
<input checked="" type="checkbox"/>	406 Frequency (Ext Ref)	Hz	±5000	±1	406019393	406081001	406019393	406081001
<input checked="" type="checkbox"/>	406 Power Level	dB	35 to 39	±1	34	40	34	40
<input checked="" type="checkbox"/>	406 PM eve Phase	rad	1.0 to 1.2	±0.04	0.96	1.24	0.96	1.24
<input checked="" type="checkbox"/>	406 PM rise Phase	rad	-1.0 to -1.2	±0.04	-0.96	-1.24	-0.96	-1.24
<input checked="" type="checkbox"/>	406 PM Rise Time	µs	50 to 250	±10	40	260	40	260
<input checked="" type="checkbox"/>	406 PM Fall Time	µs	50 to 250	±10	40	260	40	260
<input checked="" type="checkbox"/>	406 PM Symmetry	-	±0.05	±0.005	-	0.055	-	0.055
<input checked="" type="checkbox"/>	406 PM Bit Rate	Hz	396 to 404	±0.2	395.8	404.2	395.8	404.2
<input checked="" type="checkbox"/>	406 CW Preamble	ms	158.4 to	±0.8	157.6	162.4	157.6	162.4
<input checked="" type="checkbox"/>	406 Spectral Mask		Corner 1	dBc	-20	3	-20	3
			Corner 2	dBc	-30	7	-30	7
			Corner 3	dBc	-35	12	-35	12
			Corner 4	dBc	-40	24	-40	24
<b>121 &amp; for 243 MHz</b>								
<input checked="" type="checkbox"/>	121 Frequency (Int Ref)	Hz	±50 ppm	±50	121493825	121506175	121493825	121506175
<input checked="" type="checkbox"/>	121 Frequency (Ext Ref)	Hz	±50 ppm	±30	121433895	121506105	121433895	121506105
<input checked="" type="checkbox"/>	121 Power Level	dB	14 to 27	±1.5	12.5	28.5	12.5	28.5
<input checked="" type="checkbox"/>	243 Frequency (Int Ref)	Hz	±50 ppm	±500	242987650	243012350	242987650	243012350
<input checked="" type="checkbox"/>	243 Frequency (Ext Ref)	Hz	±50 ppm	±30	242987620	243012180	242987620	243012180
<input checked="" type="checkbox"/>	243 Power Level	dB	14 to 27	±1.5	12.5	28.5	12.5	28.5
<input checked="" type="checkbox"/>	Sweep Direction				UPWARDS or DOWNWARDS		UPWARDS or DOWNWARDS	
<input checked="" type="checkbox"/>	Audio Freq - lower	Hz	300	±30	270	-	270	-
<input checked="" type="checkbox"/>	Audio Freq - upper	Hz	1600	±30	-	1630	-	1630
<input checked="" type="checkbox"/>	Audio Sweep Range	Hz	2700	±60	640	1360	640	1360
<input checked="" type="checkbox"/>	AM Sweep Rise Rate	Hz	2 to 4	±0.1	1.9	4.1	1.9	4.1
<input checked="" type="checkbox"/>	AM Mod's Factor	%	85 to 100	±5	84.5	100	84.5	100
<input checked="" type="checkbox"/>	AM Duty Cycle	%	33 to 55	±2	31	57	31	57
<b>406 Digital Message</b>								
<input checked="" type="checkbox"/>	15 Hex ID				no verification of 15 Hex ID			
<input checked="" type="checkbox"/>	BCH error correcting field				verification of BCH1 & BCH 2			verification of BCH1 & BCH2
<b>406 Location</b>								
<input checked="" type="checkbox"/>	Latitude	deg	-	-	C/S Default Value		0	
<input checked="" type="checkbox"/>	Longitude	deg	-	-	C/S Default Value		0	
<input checked="" type="checkbox"/>	A distance	m	-	-	0		0	
<b>Miscellaneous Settings</b>								
<input type="checkbox"/>	Fail if 121 is not							
<input type="checkbox"/>	Fail if 243 is not detected							
<input type="checkbox"/>	Fail if Location is default							
<input type="checkbox"/>	Fail if set to INT REF							
<b>Limits File Generation</b>					Filename	Revision	Filename	Revision
					default	1.00	user	1.00
					Limitz File Name:	406Limitz000(D).lim	user-0000(U).lim	
<b>Generate Limit Files</b>								

**Beacon Test Report**  
A7SD014ED540401

Organization: Bom  
Tester By: Bom  
Date: 5/21/07 11:33:39 AM  
Tester Model Serial No. File Name: BT100A/VS 64021/Burn7  
Tester Cal Due Date: Jan 21, 2010  
Tester Temperature: 25°C  
Tester Limits Used: vnc UserLimits 0.4

Notes: Add test comments here.

Parameters	Measured Data	Lower Limit	Upper Limit	Pass/Fail
406 Freq (Hz) (INT REF)	406026543	406019575	406081425	Pass
406 Power (%)	103	34	40	Fail
406 Power Rise (ms)	< 5.5 ms	-	5.5	Pass
406 Mod (rad)	0.92	0.96	1.24	Fail
406 Mod (rad)	-1.27	-0.96	-1.24	Fail
406 Mod Rise (µs)	165	40	260	Pass
406 Mod Fall (µs)	177	40	260	Pass
406 Bit Rate (bps)	400.5	395.8	404.2	Pass
406 Preamble (ms)	160.1124	157.6	162.4	Pass
406 Spectrum C1 (dB)	<	-20	3	Pass
406 Spectrum C2 (dB)	<	-30	7	Pass
406 Spectrum C3 (dB)	<	-35	12	Pass
406 Spectrum C4 (dB)	<	-40	24	Pass
121 Freq (Hz) (INT REF)	121499235	121493825	121506175	Pass
121 Power (%)	89	12.5	28.5	Fail
121 Sweep Direction	down	up	up	Pass
Audio LF (Hz)	637	270	-	Pass
Audio HF (Hz)	1500	-	1630	Pass
Sweep Range (Hz)	813	640	1360	Pass
Duty Cycle (Hz)	38	31	57	Pass
Mod Factor (Hz)	97	84.5	100	Pass
Sweep Rate (Hz)	3.1	1.9	4.1	Pass
406 Hex ID	A7SD014ED540401	-	-	Pass
406 BCH	Valid	-	-	Pass



The screenshots show the ELT Tester software interface. The main window displays a 'RECEIVE' button and 'LIMITS ON' indicator. A 'Limits File: default-0100(D).lim' is shown. A detailed report window for beacon A78D014ED540401 shows the following data:

- Short Message: A78D014ED540401
- 406 Frequency: 406.0261 MHz
- 406 Power: 102 %
- Power Rise Time: < 5 ms
- Phase Deviation: -1.27 +0.97 rad
- Mod Rise Time: 165 us
- Mod Fall Time: 198 us
- Mod Symmetry: 8.0%
- Mod Bit Rate: 400.4 bps
- CW Preamble: 159.9 ms

# LTS200 Specifications

PARAMETER	UNITS	C/S T.001 Limits	BT100 Uncert	DEFAULT LIMITS (including BT100 Uncert)		USER-DEFINED MAX INPUT RANGE	
				Lower	Upper	Lower	Upper
<b>406 MHz</b>							
406 Frequency (Int Ref)	Hz	±5000	±425	406019575	406081425	406.0 to 406.1 MHz	
406 Frequency (Ext Ref)	Hz	±5000	±1	406019999	406081001	406.0 to 406.1 MHz	
406 Power Level	5 WATT	dBm	35 to 39	±1	34	40	20 to 40 dBm
	INT ANT	%	n/a		5	105	0 to 150 %
	EXT COAX	%	n/a		5	105	0 to 150 %
406 Power Rise Time	ms	<5	0.5	-	5.5	-	5.5
406 PM +ve Phase Deviation	rad	1.0 to 1.2	±0.04	0.96	1.24	0.2 to 3.0 rad	
406 PM -ve Phase Deviation	rad	-1.0 to -1.2	±0.04	-0.96	-1.24	-0.2 to -3.0 rad	
406 PM Rise Time	µs	50 to 250	±10	40	260	0 to 625 µs	
406 PM Fall Time	µs	50 to 250	±10	40	260	0 to 625 µs	
406 PM Symmetry	-	≤0.05	±0.005	-	0.055	0 to 0.5	
406 PM Bit Rate	Hz	396 to 404	±0.2	395.8	404.2	393 to 407 Hz	
406 CW Preamble	ms	158.4 to 161.6	±0.8	157.6	162.4	140 to 180 ms	
406 Spectral Mask	Corner 1		dBC   ±kHz	-20	3	0 to -65 dB	0 to 5 kHz
	Corner 2		dBC   ±kHz	-30	7	0 to -65 dB	5 to 9.5 kHz
	Corner 3		dBC   ±kHz	-35	12	0 to -65 dB	9.5 to 18 kHz
	Corner 4		dBC   ±kHz	-40	24	0 to -65 dB	18 to 25 kHz

<b>121 &amp;/or 243 MHz</b>				Lower	Upper	Lower	Upper
121 Frequency (Int Ref)	Hz	±50 ppm	±150	121493825	121506175	121.49 to 121.51 MHz	
121 Frequency (Ext Ref)	Hz	±50 ppm	±30	121493895	121506105	121.49 to 121.51 MHz	
121 Power Level	5 WATT	dBm	14 to 27	±1.5	12.5	28.5	0 to 30 dBm
	INT ANT	%	n/a		5	105	0 to 110 %
	EXT COAX	%	n/a		5	105	0 to 110 %
243 Frequency (Int Ref)	Hz	±50 ppm	±300	242987650	243012350	242.98 to 243.02 MHz	
243 Frequency (Ext Ref)	Hz	±50 ppm	±30	242987820	243012180	242.98 to 243.02 MHz	
243 Power Level	5 WATT	dBm	14 to 27	±1.5	12.5	28.5	0 to 30 dBm
	INT ANT	%	n/a		5	105	0 to 110 %
	EXT COAX	%	n/a		5	105	0 to 110 %
Sweep Direction	UPWARDS or DOWNWARDS				UP, DOWN, DON'T CARE		
Audio Freq - lower	Hz	300	±30	270	-	30 to 900 Hz	-
Audio Freq - upper	Hz	1600	±30	-	1630	-	900 to 1630 Hz
Audio Sweep Range	Hz	≥700	±60	640	1360	0 to 1600 Hz	
AM Sweep Rep Rate	Hz	2 to 4	±0.1	1.9	4.1	1 to 5 Hz	
AM Mod'n Factor	%	85 to 100	±5	84.5	100	5 to 100 %	
AM Duty Cycle	%	33 to 55	±2	31	57	10 to 80 %	

## 406 Digital Message

15 Hex ID		no verification of 15 Hex ID	15 Characters
BCH error correcting field		verific'n of BCH1 & BCH 2	verific'n of BCH1 & BCH2

## 406 Location

Latitude	deg	-	C/S Default Value	-90 to +90 degrees
Longitude	deg	-	C/S Default Value	-180 to +180 degrees
Δ distance	m	-	0	100 km

Developed and Manufactured in Canada by:



WS Technologies Inc. is an ISO 9001 Certified company

### Minimum Requirements:

- BT100 Series Beacon Tester
- Microsoft Excel™ to generate Limit files
- Capability to transfer files from PC to PDA – (ActiveSync™ or SD memory card)

