



Test report No:

NIE: 48509RAN.002

Summary Test report

CTIA Test plan for mobile station over the air performance. Method of measurement for radiated RF power and receiver performance. September 2015. Revision 3.5.2

Identification of item tested.....:	Cargo and Asset Tracking Device
Trademark	CelloTrack
Model and/or type reference	CelloTrack Nano 20 3G- GC9771004-000
Other identification of the product	FCC ID (module): QIPEHS6-A
Final HW version	B
Final SW version	34
S/N.....:	Unit ID: 995447
Features :	3G cellular communication, GNSS, short range RF and wide sensing capabilities
Manufacturer	Company name: Pointer Telocation Inc Postal Address: 7715 NW 48th Street, Suite 395, Doral, FL 33166 Jay Pico Telephone: +1 (305) 903-6634 Email: Jayp@pointer.com
Test method requested, standard.....:	[1] CTIA Test plan for mobile station over the air performance. Method of measurement for radiated RF power and receiver performance. September 2015. Revision 3.5.2.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Miguel Lacave Antennas Lab Manager
Date of issue	2016-05-18
Report template No.....:	FDT08_18

1. TEST RESULTS

1.1 Equipment Under Test (EUT) information

Manufacturer	Pointer Telocation Inc
Model	CelloTrack Nano 20 3G- GC9771004-000
Serial Number(s)/ESN(s)/IMEI(s)	Unit ID: 995447
FCC ID Number	Module: QIPEHS6-A
Hardware Version	B
Software Version	34
Configuration of Primary Mechanical Mode	Integrated Device

1.2 Bands and protocols supported by each antenna

Antenna Label	Bands and Protocols for Which the Antenna Is Connected to the Transmitter	Bands and Protocols for Which the Antenna Is Connected to the Primary Receiver and Is Always Active	Bands and Protocols for Which the Antenna Is Connected to the Primary Receiver and Is Dynamically Active	Bands and Protocols for Which the Antenna Is Connected to the Secondary Receiver and Is Always Active	Bands and Protocols for Which the Antenna Is Connected to the Secondary Receiver and Is Dynamically Active	Protocol/Band Pairs Which Cannot Be Used for Single Point Offset Tests per (Section 5.13, Section 6.15, and Section 6.13.3.3) Because the Antenna Tuning Changes
'A'	GPRS/EGPRS 850/1900 WCDMA II/V	GPRS/EGPRS 850/1900 WCDMA II/V	N/A	N/A	N/A	N/A

1.3 EUTs used for each test

Serial Number/ ESN/IMEI	CATL/ Chamber used	RAT(s)	Band(s)	Test Type(s)	Test Condition(s)
995447	Code 20080208-00 / ETS Lindgren AMS-8500	GPRS / EGPRS / WCDMA	Cellular 850 / PCS 1900 / WCDMA Bands II / V	TRP / TIS / ICS	Free Space

1.4 Cellular OTA Summation Test Report

GPRS/EGPRS – TRP Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted power (dBm)	TRP (dBm)					NHPRP ± 45° (dBm)					NHPRP ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
Cellular / GPRS 850	128	824.20	-	25.68	-	-	-	-	25.05	-	-	-	-	23.96	-	-	-	-
	190	836.6	-	25.42	-	-	-	-	24.79	-	-	-	-	23.69	-	-	-	-
	251	848.80	-	25.19	-	-	-	-	24.56	-	-	-	-	23.45	-	-	-	-
Cellular / EGPRS 850	128	824.20	-	19.54	-	-	-	-	18.91	-	-	-	-	17.82	-	-	-	-
	190	836.6	-	19.25	-	-	-	-	18.61	-	-	-	-	17.51	-	-	-	-
	251	848.80	-	18.94	-	-	-	-	18.30	-	-	-	-	17.19	-	-	-	-
PCS / GPRS 1900	512	1850.2	-	23.09	-	-	-	-	21.96	-	-	-	-	20.54	-	-	-	-
	661	1880	-	23.64	-	-	-	-	22.48	-	-	-	-	20.99	-	-	-	-
	810	1909.8	-	23.77	-	-	-	-	22.57	-	-	-	-	21.04	-	-	-	-
PCS / EGPRS 1900	512	1850.2	-	18.59	-	-	-	-	17.46	-	-	-	-	16.04	-	-	-	-
	661	1880	-	18.62	-	-	-	-	17.45	-	-	-	-	15.96	-	-	-	-
	810	1909.8	-	17.98	-	-	-	-	16.78	-	-	-	-	15.25	-	-	-	-

FS = Free Space
HL = Hand Left (Hand Phantom Only)
HR = Hand Right (Hand Phantom Only)
BHHL = Beside Head and Hand Left Side (Head and Hand Phantom)
BHHR = Beside Head and Hand Right Side (Head and Hand Phantom)
 - = Not Applicable

GPRS/EGPRS – TIS Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted sensitivity (dBm)	TIS (dBm)					NHPIS ± 45° (dBm)					NHPIS ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
Cellular / GPRS 850	128	869.20	-	-109.8	-	-	-	-	-109.0	-	-	-	-	-107.8	-	-	-	-
	190	881.60	-	-108.6	-	-	-	-	-107.8	-	-	-	-	-106.6	-	-	-	-
	251	893.80	-	-107.9	-	-	-	-	-107.1	-	-	-	-	-105.9	-	-	-	-
Cellular / EGPRS 850	128	869.20	-	-100.7	-	-	-	-	-99.9	-	-	-	-	-98.7	-	-	-	-
	190	881.60	-	-99.2	-	-	-	-	-98.4	-	-	-	-	-97.3	-	-	-	-
	251	893.80	-	-99.2	-	-	-	-	-98.4	-	-	-	-	-97.2	-	-	-	-
PCS / GPRS 1900	512	1930.2	-	-109.6	-	-	-	-	-108.4	-	-	-	-	-107.0	-	-	-	-
	661	1960	-	-110.6	-	-	-	-	-109.4	-	-	-	-	-108.0	-	-	-	-
	810	1989.8	-	-108.8	-	-	-	-	-107.7	-	-	-	-	-106.2	-	-	-	-
PCS / EGPRS 1900	512	1930.2	-	-99.6	-	-	-	-	-98.4	-	-	-	-	-97.0	-	-	-	-
	661	1960	-	-100.1	-	-	-	-	-98.9	-	-	-	-	-97.5	-	-	-	-
	810	1989.8	-	-97.8	-	-	-	-	-96.7	-	-	-	-	-95.2	-	-	-	-

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HR = Hand Right (Hand Phantom Only)
BHHL = Beside Head and Hand Left Side (Head and Hand Phantom)
BHHR = Beside Head and Hand Right Side (Head and Hand Phantom)
 - = Not Applicable

WCDMA - TRP Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted power (dBm)	TRP (dBm)					NHPRP ± 45° (dBm)					NHPRP ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
WCDMA Band II	9262	1852.4	-	22.69	-	-	-	-	21.56	-	-	-	-	20.15	-	-	-	-
	9400	1880	-	22.57	-	-	-	-	21.41	-	-	-	-	19.94	-	-	-	-
	9538	1907.6	-	22.51	-	-	-	-	21.31	-	-	-	-	19.80	-	-	-	-
WCDMA Band V	4132	826.4	-	23.09	-	-	-	-	22.46	-	-	-	-	21.37	-	-	-	-
	4183	836.6	-	22.36	-	-	-	-	21.73	-	-	-	-	20.63	-	-	-	-
	4233	846.6	-	21.85	-	-	-	-	21.21	-	-	-	-	20.12	-	-	-	-

FS = Free Space

HL = Hand Left (Hand Phantom Only)

HR = Hand Right (Hand Phantom Only)

BHHL = Beside Head and Hand Left Side (Head and Hand Phantom)

BHHR = Beside Head and Hand Right Side (Head and Hand Phantom)

- = Not Applicable

WCDMA – TIS Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted sensitivity (dBm)	TIS (dBm)					NHPIS ± 45° (dBm)					NHPIS ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
WCDMA Band II	9662	1932.4	-	-107.9	-	-	-	-	-106.9	-	-	-	-	-105.4	-	-	-	-
	9800	1960	-	-108.2	-	-	-	-	-107.2	-	-	-	-	-105.8	-	-	-	-
	9938	1987.6	-	-107.6	-	-	-	-	-106.6	-	-	-	-	-105.2	-	-	-	-
WCDMA Band V	4357	871.4	-	-108.1	-	-	-	-	-107.3	-	-	-	-	-106.1	-	-	-	-
	4408	881.6	-	-107.5	-	-	-	-	-106.7	-	-	-	-	-105.5	-	-	-	-
	4458	891.6	-	-107.0	-	-	-	-	-106.2	-	-	-	-	-105.0	-	-	-	-

FS = Free Space

HL = Hand Left (Hand Phantom Only)

HR = Hand Right (Hand Phantom Only)

BHHL = Beside Head and Hand Left Side (Head and Hand Phantom)

BHHR = Beside Head and Hand Right Side (Head and Hand Phantom)

- = Not Applicable

1.5 GPRS/EGPRS and WCDMA Intermediate Channel Relative Sensitivity (RS)

Band / Mode	Intermediate Channels	FS	BHHR	Comments
Cellular / GPRS 850	128-159	Pass	-	
	160-220	Pass	-	
	221-251	Pass	-	
Cellular / EGPRS 850	128-159	Pass	-	
	160-220	Pass	-	
	221-251	Pass	-	
PCS / GPRS 1900	512-586	Pass	-	
	587-735	Pass	-	
	736-810	Pass	-	
PCS / EGPRS 1900	512-586	Pass	-	
	587-735	Pass	-	
	736-810	Pass	-	
WCDMA Band II	9662-9728	Pass	-	
	9740-9860	Pass	-	
	9872-9938	Pass	-	
WCDMA Band V	4357-4372	Pass	-	
	4384-4432	Pass	-	
	4444-4458	Pass	-	

FS = Free Space

BHHR = Beside Head and Hand Right Side (Head and Hand Phantom)

- = Not Applicable

1.6 Minimum TRP level requirements

1.6.1 GPRS, EGPRS and WCDMA minimum TRP level requirements for the primary mechanical mode^{1 2}

Mode	Device Held Up to Head for Voice (Yes/No ³)	Device Power Class		Channel	TX Frequency (MHz)	FS			HL			HR			BHHL			BHHR		
		Class	Power			Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info
GPRS 850	NO	4	12	128	824.2	20	25.68	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				190	836.6		25.42	Info		-	-		-	-		-	-			
				251	848.8		25.19	Info		-	-		-	-		-	-			
EGPRS 850	NO	E2	12	128	824.2	17	19.54	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				190	836.6		19.25	Info		-	-		-	-		-	-			
				251	848.8		18.94	Info		-	-		-	-		-	-			
GPRS 1900	NO	1	12	512	1850.2	18.5	23.09	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				661	1880		23.64	Info		-	-		-	-		-	-			
				810	1909.8		23.77	Info		-	-		-	-		-	-			
EGPRS 1900	NO	E2	12	512	1850.2	17.5	18.59	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				661	1880		18.62	Info		-	-		-	-		-	-			
				810	1909.8		17.98	Info		-	-		-	-		-	-			
WCDMA II	NO	3	-	9262	1852.4	18.5	22.69	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				9400	1880		22.57	Info		-	-		-	-		-	-			
				9538	1907.6		22.51	Info		-	-		-	-		-	-			
WCDMA V	NO	3	-	4132	826.4	17	23.09	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-
				4183	836.6		22.36	Info		-	-		-	-		-	-			
				4233	846.6		21.85	Info		-	-		-	-		-	-			

Note 1: Primary Mechanical Mode refers to device configured in preferred mode per manufacturer instructions (one only in this case).

Note 2: The associated TRP limits for GPRS are based on measurements made with one uplink slot, which are 26 dBm for 850 MHz band and 24.5 dBm for 1900 MHz band. Devices tested using four uplink slots are allowed a TRP reduction of up to 6 dB, therefore the actual GPRS TRP limits are 20 dBm (850 MHz band) and 18.5 dBm (1900 MHz band) in this case. The associated TRP limits for EGPRS are based on measurements made with one or two uplink slots, which are 20 dBm for 850 MHz band and 20.5 dBm for 1900 MHz band. Devices tested using four uplink slots are allowed a TRP reduction of up to 3 dB, therefore the actual EGPRS TRP limits are 17 dBm (850 MHz band) and 17.5 dBm (1900 MHz band) in this case.

Note 3: "Yes" applies if the device supports voice operation in the talking position against the head in any cellular radio mode.

Note 4: "No" would be applicable to data-centric devices that are not held up against the head, e.g., embedded laptop solutions.

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TDB = To Be Determined;

- = Not Applicable

1.7 Maximum TIS level requirements

1.7.1 GPRS, EGPRS and WCDMA maximum TIS level requirements for the primary mechanical mode¹

Mode	Device Held Up to Head for Voice (Yes/No ²)	Device Power Class	Multi-sol Class	Channel		RX Frequency (MHz)	FS			HL			HR			BHHL			BHHR		
							Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info	Limit (dBm)	Test Results (dBm)	Pass/Fail/Info
GPRS 850	NO	4	12	128	824.2	-99	-109.8	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				190	836.6		-108.6	Info		-	-		-	-		-	-				
				251	848.8		-107.9	Info		-	-		-	-		-					
EGPRS 850	NO	E2	12	128	824.2	-94	-100.7	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				190	836.6		-99.2	Info		-	-		-	-		-					
				251	848.8		-99.2	Info		-	-		-	-		-					
GPRS 1900	NO	1	12	512	1850.2	-101.5	-109.6	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				661	1880		-110.6	Info		-	-		-	-		-					
				810	1909.8		-108.8	Info		-	-		-	-		-					
EGPRS 1900	NO	E2	12	512	1850.2	-97	-99.6	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				661	1880		-100.1	Info		-	-		-	-		-					
				810	1909.8		-97.8	Info		-	-		-	-		-					
WCDMA II	NO	3	-	9662	1932.4	-102	-107.9	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				9800	1960		-108.2	Info		-	-		-	-		-					
				9938	1987.6		-107.6	Info		-	-		-	-		-					
WCDMA V	NO	3	-	4357	871.4	-100	-108.1	Info	N/A	-	-	N/A	-	-	N/A	-	-	N/A	-	-	
				4408	881.6		-107.5	Info		-	-		-	-		-					
				4458	891.6		-107.0	Info		-	-		-	-		-					

Note 1: Primary Mechanical Mode refers to device configured in preferred mode per manufacturer instructions (one only in this case).

Note 2: "Yes" applies if the device supports voice operation in the talking position against the head in any cellular radio mode.

Note 3: "No" would be applicable to data-centric devices that are not held up against the head, e.g., embedded laptop solutions.

FS = Free Space

HL = Hand Left (Hand Phantom Only)

HR = Hand Right (Hand Phantom Only)

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TDB = To Be Determined

- = Not Applicable

2. EXPANDED MEASUREMENT UNCERTAINTIES

The expanded measurement uncertainties are listed below for the different frequency bands. These uncertainties refer to a coverage factor of 2, corresponding to 95% confidence level.

Table 1. *Total Normal and Alternate TRP Measurement Uncertainty results for different configurations*

Test Method	TRP Test Configuration	Uncertainty Expanded Uncertainty (k=2, 95 % confidence level) [dB]					
		LTE 700 699-798 MHz	Cellular 824-894 MHz	AWS-1 Tx 1710-1755 MHz	PCS 1850-1990 MHz	LTE 41 2300-2800 MHz	Limits according to CTIA test plan v3.5.2, table 7-8
Normal	FREE SPACE	1.43	1.27	1.40	1.46	1.57	2.0
	PHANTOM HEAD AND HAND	2.22	2.08	2.09	2.13	2.21	2.4
	PHANTOM HAND ONLY	1.70	1.57	1.67	1.72	1.82	2.2
	LAPTOPS OVER 30cm	1.59	1.39	1.40	1.46	1.57	2.0
Alternate	FREE SPACE	1.53	1.38	1.50	1.56	1.66	2.0
	PHANTOM HEAD AND HAND	2.28	2.15	2.16	2.20	2.27	2.4
	PHANTOM HAND ONLY	1.78	1.66	1.76	1.81	1.90	2.2
	LAPTOPS OVER 30cm	1.68	1.49	1.50	1.56	1.66	2.0

Table 2. *Total Normal, RSS based and Alternate TIS Measurement Uncertainty results for different configurations*

Test Method	TIS Test Configuration	Uncertainty Expanded Uncertainty (k=2, 95 % confidence level) [dB]						
		LTE 700 699-798 MHz	Cellular 824-894 MHz	GPS 1575.42 MHz	PCS 1850-1990 MHz	AWS-1 Rx 2110-2155 MHz	LTE 41 2300-2800 MHz	Limits according to CTIA test plan v3.5.2, table 7-8
Normal	FREE SPACE	1.58	1.44	--	1.61	1.64	1.71	2.3
	PHANTOM HEAD AND HAND	2.32	2.19	--	2.24	2.27	2.31	2.6
	PHANTOM HAND ONLY	1.83	1.71	--	1.85	1.88	1.94	2.4
	LAPTOPS OVER 30cm	1.73	1.54	--	1.61	1.66	1.71	2.3
RSS based	FREE SPACE	1.73	1.60	1.69	1.75	1.78	1.85	2.3
	PHANTOM HEAD AND HAND	2.42	2.29	2.30	2.34	2.37	2.41	2.6
	PHANTOM HEAD ONLY	1.96	1.84	1.92	1.98	2.00	2.06	2.4
	LAPTOPS OVER 30cm	1.86	1.69	1.70	1.76	1.79	1.85	2.3
Alternate	FREE SPACE	1.74	1.61	--	1.76	1.79	1.85	2.3
	PHANTOM HEAD AND HAND	2.43	2.30	--	2.35	2.38	2.42	2.6
	PHANTOM HAND ONLY	1.96	1.85	--	1.99	2.01	2.07	2.4
	LAPTOPS OVER 30cm	1.87	1.70	--	1.76	1.80	1.86	2.3