



Test report No:  
 NIE: 59927RAN.004

## Summation Test report

### CTIA Test Plan for Wireless Device Over-the-Air Performance, Version 3.7.1, February 2018

Identification of item tested	Tracking device
Trademark	Cellotrack Nano 20 LTE C1 NA Cellotrack Nano 10 LTE C1 NA (see full test report for further details)
Model and /or type reference	GC9771010 (Cellotrack Nano 20 LTE C1 NA) GC9771011 (Cellotrack Nano 10 LTE C1 NA)
Other identification of the product	S/N: 2308678 FCC ID: QIPELS61-USA IC: 7830A-ELS61USA
Features	WCDMA and LTE cellular technologies
Manufacturer	Company name: Pointer Telocation Inc. Postal Address: 7715 NW 48 <sup>th</sup> Street, Suite 395 Doral, FL 33166 USA
Test method requested, standard	[1] CTIA Test Plan for Wireless Device Over-the-Air Performance, Version 3.7.1, February 2018
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Miguel Lacave Antennas Lab Manager
Date of issue	2019-03-07
Report template No	FDT08_21

## 1. TEST RESULTS

### 1.1 Equipment Under Test (EUT) information

Manufacturer	Pointer Telocation Inc.
Model	Cellotrack Nano 20 LTE C1 NA; GC9771010
Serial Number(s)/ESN(s)/IMEI(s)	S/N: 2308678
FCC ID Number	QIPELS61-USA
Hardware Version	B
Software Version	34
Configuration of Primary Mechanical Mode	Integrated device with internal antenna (only one)

### 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'	WCDMA II/IV/V LTE 2/4/5/12	WCDMA II/IV/V LTE 2/4/5/12	N/A	N/A	N/A	N/A

### 1.3 EUTs used for each test

Serial Number/ ESN/IMEI	CATL/ Chamber used	Cellular Radio Mode(s)	Band(s)	Test Type(s)	Test Condition(s)
S/N: 2308678	Code 20080208-00 / ETS Lindgren AMS- 8700	WCDMA, LTE	WCDMA II/IV/V LTE 2/4/5/12	TRP/TIS/ICS	Free Space

## 1.4 Cellular OTA Summation Test Report

### WCDMA – TRP Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted power (dBm)	Antenna Label					TRP (dBm)					NHPRP ± 45° (dBm)					NHPRP ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
WCDMA II	9262	1852.4	-	A	-	-	-	-	24.00	-	-	-	-	22.60	-	-	-	-	21.04	-	-	-	-
	9400	1880	-	A	-	-	-	-	24.23	-	-	-	-	22.60	-	-	-	-	20.89	-	-	-	-
	9538	1907.6	-	A	-	-	-	-	24.58	-	-	-	-	23.00	-	-	-	-	21.31	-	-	-	-
WCDMA IV	1312	1712.4	-	A	-	-	-	-	20.92	-	-	-	-	19.56	-	-	-	-	18.02	-	-	-	-
	1413	1732.6	-	A	-	-	-	-	21.59	-	-	-	-	20.24	-	-	-	-	18.62	-	-	-	-
	1513	1752.6	-	A	-	-	-	-	22.19	-	-	-	-	20.72	-	-	-	-	19.01	-	-	-	-
WCDMA V	4132	826.4	-	A	-	-	-	-	19.94	-	-	-	-	19.21	-	-	-	-	18.07	-	-	-	-
	4183	836.6	-	A	-	-	-	-	19.60	-	-	-	-	18.85	-	-	-	-	17.71	-	-	-	-
	4233	846.6	-	A	-	-	-	-	19.71	-	-	-	-	18.95	-	-	-	-	17.80	-	-	-	-

### WCDMA – TIS Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted sensitivity (dBm)	Antenna Label					TIS (dBm)					NHPIS ± 45° (dBm)					NHPIS ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
WCDMA II	9662	1932.4	-	A	-	-	-	-	-110.9	-	-	-	-	-109.4	-	-	-	-	-107.8	-	-	-	-
	9800	1960	-	A	-	-	-	-	-111.6	-	-	-	-	-110.0	-	-	-	-	-108.2	-	-	-	-
	9938	1987.6	-	A	-	-	-	-	-109.9	-	-	-	-	-108.2	-	-	-	-	-106.4	-	-	-	-
WCDMA IV	1537	2112.4	-	A	-	-	-	-	-109.9	-	-	-	-	-107.8	-	-	-	-	-105.8	-	-	-	-
	1638	2132.6	-	A	-	-	-	-	-110.2	-	-	-	-	-108.0	-	-	-	-	-106.1	-	-	-	-
	1738	2152.6	-	A	-	-	-	-	-109.5	-	-	-	-	-107.4	-	-	-	-	-105.4	-	-	-	-
WCDMA V	4357	871.4	-	A	-	-	-	-	-107.8	-	-	-	-	-107.0	-	-	-	-	-105.8	-	-	-	-
	4408	881.6	-	A	-	-	-	-	-109.5	-	-	-	-	-108.5	-	-	-	-	-107.3	-	-	-	-
	4458	891.6	-	A	-	-	-	-	-107.1	-	-	-	-	-106.2	-	-	-	-	-104.9	-	-	-	-

Values that do not meet the CTIA recommended performance are marked in red font

**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

## LTE – TRP Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted power (dBm)	Antenna Label					TRP (dBm)					NHPRP ± 45° (dBm)					NHPRP ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
LTE 2	18650	1851.58	-	A	-	-	-	-	23.49	-	-	-	-	22.05	-	-	-	-	20.49	-	-	-	-
	18900	1880	-	A	-	-	-	-	23.91	-	-	-	-	22.32	-	-	-	-	20.66	-	-	-	-
	19150	1908.42	-	A	-	-	-	-	22.96	-	-	-	-	21.36	-	-	-	-	19.65	-	-	-	-
LTE 4	20000	1711.58	-	A	-	-	-	-	21.01	-	-	-	-	19.61	-	-	-	-	18.02	-	-	-	-
	20175	1732.5	-	A	-	-	-	-	21.75	-	-	-	-	20.36	-	-	-	-	18.78	-	-	-	-
	20350	1753.42	-	A	-	-	-	-	22.11	-	-	-	-	20.64	-	-	-	-	18.97	-	-	-	-
LTE 5	20450	825.58	-	A	-	-	-	-	19.16	-	-	-	-	18.43	-	-	-	-	17.29	-	-	-	-
	20525	836.5	-	A	-	-	-	-	18.67	-	-	-	-	17.93	-	-	-	-	16.79	-	-	-	-
	20600	847.42	-	A	-	-	-	-	18.35	-	-	-	-	17.59	-	-	-	-	16.43	-	-	-	-
LTE 12	23035	699.97	-	A	-	-	-	-	17.95	-	-	-	-	17.33	-	-	-	-	16.23	-	-	-	-
	23095	707.5	-	A	-	-	-	-	18.14	-	-	-	-	17.51	-	-	-	-	16.41	-	-	-	-
	23155	715.03	-	A	-	-	-	-	18.33	-	-	-	-	17.70	-	-	-	-	16.60	-	-	-	-

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- = Not Applicable

### LTE – TIS Test Results

Band / Tech	Channel	Frequency (MHz)	Conducted sensitivity (dBm)	Antenna Label					TIS (dBm)					NHPIS ± 45° (dBm)					NHPIS ± 30° (dBm)				
				FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR	FS	HL	HR	BHHL	BHHR
LTE 2	650	1935	-	A	-	-	-	-	-95.8	-	-	-	-	-94.3	-	-	-	-	-92.7	-	-	-	-
	900	1960	-	A	-	-	-	-	-96.1	-	-	-	-	-94.4	-	-	-	-	-92.7	-	-	-	-
	1150	1985	-	A	-	-	-	-	-94.8	-	-	-	-	-93.1	-	-	-	-	-91.3	-	-	-	-
LTE 4	2000	2115	-	A	-	-	-	-	-94.9	-	-	-	-	-92.8	-	-	-	-	-90.8	-	-	-	-
	2175	2132.5	-	A	-	-	-	-	-95.1	-	-	-	-	-93.0	-	-	-	-	-91.0	-	-	-	-
	2350	2150	-	A	-	-	-	-	-94.2	-	-	-	-	-92.0	-	-	-	-	-90.1	-	-	-	-
LTE 5	2450	874	-	A	-	-	-	-	-92.5	-	-	-	-	-91.6	-	-	-	-	-90.4	-	-	-	-
	2525	881.5	-	A	-	-	-	-	-92.9	-	-	-	-	-92.0	-	-	-	-	-90.8	-	-	-	-
	2600	889	-	A	-	-	-	-	-90.8	-	-	-	-	-89.9	-	-	-	-	-88.6	-	-	-	-
LTE 12	5035	731.5	-	A	-	-	-	-	-93.4	-	-	-	-	-92.6	-	-	-	-	-91.4	-	-	-	-
	5095	737.5	-	A	-	-	-	-	-91.8	-	-	-	-	-91.0	-	-	-	-	-89.8	-	-	-	-
	5155	743.5	-	A	-	-	-	-	-93.0	-	-	-	-	-92.2	-	-	-	-	-91.0	-	-	-	-

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### WCDMA Intermediate Channel Relative Sensitivity (RS)

Band / Mode	Intermediate Channels	FS	BHHR
WCDMA Band II	9662-9728	Pass	-
	9740-9860	Pass	-
	9872-9938	Pass	-
WCDMA Band IV	1537-1578	Pass	-
	1590-1686	Pass	-
	1698-1738	Pass	-
WCDMA Band V	4357-4372	Pass	-
	4384-4432	Pass	-
	4444-4458	Pass	-

### LTE Intermediate Channel Relative Sensitivity (RS)

Band	Channel Bandwidth (MHz)	Channel	Frequency (MHz)	UL RB Allocation	DL RB Allocation	FS EIS <sub>(IC)</sub> (dBm) "A" receiver	BHHR EIS <sub>(IC)</sub> (dBm) "A" receiver	FS EIS <sub>(IC)</sub> (dBm) "B" receiver	BHHR EIS <sub>(IC)</sub> (dBm) "B" receiver
2	10	650	1935	50 with RBstart=0	50 with RBstart=0	-99.41	-	-	-
2	10	740	1944	50 with RBstart=0	50 with RBstart=0	-99.71	-	-	-
2	10	820	1952	50 with RBstart=0	50 with RBstart=0	-100.67	-	-	-
2	10	900	1960	50 with RBstart=0	50 with RBstart=0	-100.66	-	-	-
2	10	980	1968	50 with RBstart=0	50 with RBstart=0	-98.96	-	-	-
2	10	1060	1976	50 with RBstart=0	50 with RBstart=0	-98.26	-	-	-
2	10	1150	1985	50 with RBstart=0	50 with RBstart=0	-99.08	-	-	-
4	10	2000	2115	50 with RBstart=0	50 with RBstart=0	-99.56	-	-	-
4	10	2090	2124	50 with RBstart=0	50 with RBstart=0	-99.81	-	-	-
4	10	2175	2132.5	50 with RBstart=0	50 with RBstart=0	-100.05	-	-	-
4	10	2260	2141	50 with RBstart=0	50 with RBstart=0	-99.60	-	-	-
4	10	2350	2150	50 with RBstart=0	50 with RBstart=0	-99.45	-	-	-
5	10	2450	874	25 with RBstart=25	50 with RBstart=0	-94.55	-	-	-
5	10	2525	881.5	25 with RBstart=25	50 with RBstart=0	-94.90	-	-	-
5	10	2600	889	25 with RBstart=25	50 with RBstart=0	-92.72	-	-	-
12	5	5035	731.5	20 with RBstart=5	25 with RBstart=0	-94.74	-	-	-
12	5	5065	734.5	20 with RBstart=5	25 with RBstart=0	-95.49	-	-	-
12	5	5095	737.5	20 with RBstart=5	25 with RBstart=0	-93.09	-	-	-
12	5	5125	740.5	20 with RBstart=5	25 with RBstart=0	-89.26	-	-	-
12	5	5155	743.5	20 with RBstart=5	25 with RBstart=0	-94.15	-	-	-

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 - = Not Applicable

## 2. EXPANDED MEASUREMENT UNCERTAINTIES

The expanded measurement uncertainties are listed below for the different frequency bands covered in this report. 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 AMS-8700**

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 v3.7.1, table 7-8
Normal	FREE SPACE	1.48	1.60	1.52	1.56	1.65	2.0
	PHANTOM HEAD AND HAND	2.14	2.22	2.17	2.20	2.26	2.4
	PHANTOM HAND ONLY	1.74	1.84	1.78	1.81	1.89	2.2
	LAPTOPS OVER 30cm	1.71	1.94	1.89	1.75	1.93	2.0
Alternate	FREE SPACE	1.54	1.65	1.58	1.61	1.70	2.0
	PHANTOM HEAD AND HAND	2.18	2.26	2.21	2.23	2.30	2.4
	PHANTOM HAND ONLY	1.79	1.89	1.83	1.86	1.93	2.2
	LAPTOPS OVER 30cm	1.76	1.98	1.93	1.80	1.98	2.0

Table 2. **Total Normal, RSS based and Alternate TIS Measurement Uncertainty results for AMS-8700**

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 v3.7.1, table 7-8
Normal	FREE SPACE	1.67	1.77	--	1.74	1.59	1.82	2.3
	PHANTOM HEAD AND HAND	2.27	2.35	--	2.32	2.21	2.38	2.6
	PHANTOM HAND ONLY	1.90	1.99	--	1.96	1.83	2.03	2.4
	LAPTOPS OVER 30cm	1.88	2.09	--	1.91	2.04	2.08	2.3
RSS based	FREE SPACE	1.77	1.87	--	1.84	1.70	1.91	2.3
	PHANTOM HEAD AND HAND	2.35	2.43	--	2.40	2.29	2.46	2.6
	PHANTOM HEAD ONLY	1.99	2.08	--	2.05	1.93	2.12	2.4
	LAPTOPS OVER 30cm	1.97	2.17	--	2.00	2.12	2.17	2.3
Alternate	FREE SPACE	1.81	1.91	--	1.88	1.74	1.95	2.3
	PHANTOM HEAD AND HAND	2.38	2.46	--	2.43	2.33	2.49	2.6
	PHANTOM HAND ONLY	2.03	2.12	--	2.09	1.96	2.15	2.4
	LAPTOPS OVER 30cm	2.01	2.20	--	2.04	2.16	2.20	2.3