

FCC REPORT

(LTE)

Applicant: Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd

Address of Applicant: Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen

Equipment Under Test (EUT)

Product Name: Tracker

Model No.: cp311A

FCC ID: R38YLC311A

Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 24 Subpart E
FCC CFR Title 47 Part 27 Subpart M
FCC CFR Title 47 Part 90 Subpart S

Date of sample receipt: 20 Jan., 2022

Date of Test: 21 Jan., to 27 Jan., 2022

Date of report issued: 28 Jan., 2022

Test Result: PASS*

*In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2. Version

Version No.	Date	Description
00	28 Jan., 2022	Original

Tested by: Mike Ou **Date:** 28 Jan., 2022
Test Engineer

Reviewed by: Winner Zhang **Date:** 28 Jan., 2022
Project Engineer

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4. Test Summary

Test Items	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 (a)(5) Part 24.232 (c) Part 27.50 (h)(2)	Pass ²
Peak-to-Average Ratio	Part 24.232 (d) Part 22.913 (d) Part 27.50(a)	Pass ¹
Modulation Characteristics	Part 2.1047	Pass ¹
99% & -26 dB Occupied Bandwidth	Part 2.1049	Pass ¹
Emission Mask	Part 2.1051 Part 90.210	Pass ¹
Out of band emission at antenna terminals	Part 2.1053 Part 22.917(a) Part 24.238 (a) Part 27.53(m) Part 90.691	Pass ¹
Field strength of spurious radiation	Part 22.917(a) Part 24.238 (a) Part 27.53(m) Part 90.691	Pass ²
Frequency stability vs. temperature	Part 22.355 Part 24.235 Part 27.54 Part 90.213 Part 2.1055(a)(1)(b)	Pass ¹
Frequency stability vs. voltage	Part 22.355 Part 24.235 Part 27.54 Part 90.213 Part 2.1055(d)(2)	Pass ¹
Remark: 1. Pass ¹ : Items data are refer from the original report issued by SGS-CSTC Standards Technical Services, Co., Ltd. Shenzhen Branch. (Date of Test: 2019/1/10-2019/1/24). The detailed data refer to Appendix B.1 -LTE BAND 25 & Appendix B.2 of LTE BAND 26(814MHz-824MHz) & Appendix B.3 of LTE BAND 26(824MHz-849MHz) & Appendix B.4 of LTE BAND 41 2. Pass ² : These items are tested by JianYan Testing Group Shenzhen Co., Ltd. 3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).		
Test Method:	ANSI/TIA-603-E-2016 ANSI C63.26-2015	

5. General Information

5.1 Client Information

Applicant:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen
Manufacturer:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen

5.2 General Description of E.U.T.

Product Name:	Tracker		
Model No.:	cp311A		
Operation Frequency range:	LTE Band 25:	TX: 1850 MHz-1915 MHz	RX: 1930 MHz-1995 MHz
	LTE Band 26:	TX: 814MHz-849MHz	RX: 859MHz-894MHz
	LTE Band 41:	TX: 2500MHz-2690MHz	RX: 2500MHz-2690MHz
Modulation type:	☒ QPSK	☒ 16QAM	
Antenna type:	Integrated Antenna		
Antenna gain:	LTE Band 25:	-3.15dBi(declare by Applicant)	
	LTE Band 26:	-1.36 dBi(declare by Applicant)	
	LTE Band 41:	-1.31 dBi(declare by Applicant)	
Power supply:	☒ AC/DC Adapter		
Test Sample Condition:	The applicant provided engineering samples for staying in continuously transmitting for testing.		

Operation Frequency List:

LTE Band 25 (1.4MHz)		LTE Band 25 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26047	1850.70	26055	1851.50
26048	1850.80	26056	1851.60
....			
26364	1882.40	26367	1882.40
26365	1882.50	26365	1882.50
26366	1882.60	26366	1882.60
...	...	...	...
26682	1914.20	26676	1913.40
26683	1914.30	26675	1913.50
LTE Band 25 (5MHz)		LTE Band 25 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26065	1852.50	26090	1855.00
26066	1852.60	26091	1855.10
....			
26364	1882.40	26364	1882.40
26365	1882.50	26365	1882.50
26366	1882.60	26366	1882.60
...	...	...	...
26664	1912.40	26639	1909.90
26665	1912.50	26640	1910.00
LTE Band 25 (15MHz)		LTE Band 25 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26115	1857.50	26140	1860.00
26116	1857.60	26139	1860.10
....			
26364	1882.40	26364	1882.40
26365	1882.50	26365	1882.50
36366	1882.60	26366	1882.60
...	...	...	...
26614	1907.40	26589	1904.90
26615	1907.50	26590	1905.00

LTE Band 26 (1.4MHz)		LTE Band 26 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26697	814.70	26705	815.50
26698	814.80	26706	815.60
....			
26864	831.40	26864	831.40
26865	831.50	26865	831.50
26866	831.60	26866	831.60
...	...	...	...
27032	848.20	27024	847.40
27033	848.30	27025	847.50
LTE Band 26 (5MHz)		LTE Band 26 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26715	816.50	26750	820.00
26716	816.60	26760	820.10
....			
26864	831.40	26864	831.40
26865	831.50	26865	831.50
26866	831.60	26866	831.60
...	...	...	...
27014	846.40	26980	843.90
27015	846.50	26990	844.00
LTE Band 26 (15MHz)			
Channel	Frequency (MHz)		
26775	822.50		
26776	822.60		
....			
26864	831.40		
26865	831.50		
26866	831.60		
...	...		
26964	841.40		
26965	841.50		

LTE Band 41 (5MHz)		LTE Band 41 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
39675	2498.50	39700	2501.00
39676	2498.60	39701	2501.10
....			
40619	2593.90	40619	2593.90
40620	2593.00	40620	2593.00
40621	2593.10	40621	2593.10
...	...	...	...
41564	2687.40	41539	2684.90
41565	2687.50	41540	2685.00
LTE Band 41 (15MHz)		LTE Band 41 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
39725	2503.50	39750	2506.00
39726	2503.60	39751	2506.10
....			
40619	2593.90	40619	2593.90
40620	2593.00	40620	2593.00
40621	2593.10	40621	2593.10
...	...	...	...
41514	2682.40	41489	2679.90
41515	2682.50	41490	2680.00

Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

LTE Band 25:

LTE Band 25 (1.4MHz)			LTE Band 25 (3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26047	1850.70	Lowest channel	26055	1851.50
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26683	1914.30	Highest channel	26675	1913.50
LTE Band 25 (5MHz)			LTE Band 25 (10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26065	1852.50	Lowest channel	26090	1855.00
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26665	1912.50	Highest channel	26640	1910.00
LTE Band 25 (15MHz)			LTE Band 25 (20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26115	1857.50	Lowest channel	26140	1860.00
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26615	1907.50	Highest channel	26590	1905.00

LTE Band 26:

LTE Band 26(1.4MHz) for Part 22			LTE Band 26(1.4MHz) for Part 90		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26797	824.7	Lowest channel	26697	814.7
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27033	848.3	Highest channel	26783	823.3
LTE Band 26(3MHz) for Part 22			LTE Band 26(3MHz) for Part 90		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26805	825.5	Lowest channel	26705	815.5
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27025	847.5	Highest channel	26775	822.5
LTE Band 26(5MHz) for Part 22			LTE Band 26(5MHz) for Part 90		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26815	826.5	Lowest channel	26715	816.5
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27015	846.5	Highest channel	26765	821.5
LTE Band 5&26(10MHz) for Part 22			LTE Band 26(10MHz) for Part 90		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26840	829.0	Lowest channel	/	/
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	26990	844.0	Highest channel	/	/
LTE Band 26(15MHz) for Part 22					
Channel		Frequency (MHz)			
Lowest channel	26865	831.5			
Middle Channel	26915	836.5			
Highest channel	26965	841.5			

LTE Band 41:

LTE Band 41 (5MHz)			LTE Band 41 (10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	39675	2498.50	Lowest channel	39700	2501.00
Middle channel	40620	2593.00	Middle channel	40620	2593.00
Highest channel	41565	2687.50	Highest channel	41540	2685.00
LTE Band 41 (15MHz)			LTE Band 41 (20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	39725	2503.50	Lowest channel	39750	2506.00
Middle channel	40620	2593.00	Middle channel	40620	2593.00
Highest channel	41515	2682.50	Highest channel	41490	2680.00

5.3 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.85Vdc
Test mode:	
LTE QPSK mode	Keep the EUT communication with simulated station in QPSK mode
LTE 16-QAM mode	Keep the EUT communication with simulated station in 16-QAM mode
Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report.	

5.4 Description of Support Units

Test Equipment	Manufacturer	Model No.	Serial No.
Simulated Station	Anritsu	MT8820C	6201026545

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission (9kHz ~ 30MHz electric field) for 3m SAC	3.13 dB
Radiated Emission (9kHz ~ 30MHz magnetic field) for 3m SAC	3.13 dB
Radiated Emission (30MHz ~ 1GHz) for 3m SAC	4.45 dB
Radiated Emission (1GHz ~ 18GHz) for 3m SAC	5.34 dB
Radiated Emission (18GHz ~ 40GHz) for 3m SAC	5.34 dB

5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.
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5.7 Additions to, deviations, or exclusions from the method

No

5.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

5.10 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
3m SAC	ETS	RFD-100	Q1984	04-14-2021	04-13-2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-044	03-07-2021	03-06-2022
BiConiLog Antenna	SCHWARZBECK	VULB9163	9163-1246	03-07-2021	03-06-2022
Biconical Antenna	SCHWARZBECK	VUBA 9117	9117#359	06-17-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	912D-916	03-07-2021	03-06-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1067	04-02-2021	04-01-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1068	04-02-2021	04-01-2022
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Keysight	N9010B	MY60240202	10-27-2021	10-26-2022
Simulated Station	Anritsu	MT8820C	6201026545	03-03-2021	03-02-2022
Band Reject Filter Group	Tonscend	JS0806	21B8060367	04-06-2021	04-05-2022
Low Pre-amplifier	SCHWARZBECK	BBV9743B	00305	03-07-2021	03-06-2022
High Pre-amplifier	SKET	LNPA_0118G-50	MF280208233	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-NN-8M	JYT3M-1	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-18G-NN-8M	JYT3M-2	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-BB-5M	JYT3M-3	03-07-2021	03-06-2022
Cable	Bost	JYT3M-40G-SS-8M	JYT3M-4	04-02-2021	04-01-2022
EMI Test Software	Tonscend	TS+	Version:3.0.0.1		

Conducted Method:					
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Simulated Station	Rohde & Schwarz	CMW500	WXJ081	07-02-2021	07-01-2022
DC Power Supply	Keysight	E3642A	WXJ025-2	10-25-2021	10-24-2022
Temperature Humidity Chamber	HONG ZHI	CZ-A-80D	WXJ032-3	03-19-2021	03-18-2022
RF Control Unit	Tonscend	JS0806-1	WXG010	N/A	
Test Software	Tonscend	TS+	Version: 2.6.9.0526		

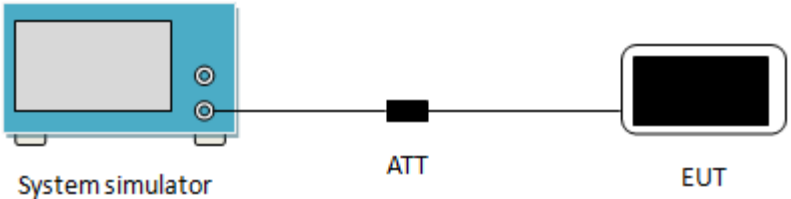
6. Test Results

6.1 Conducted Output Power

6.1.1 Re-test statement

Re-test statement: The EUT is operating at the same power level with the original testing of SGS-CSTC Standards Technical Services, Co Ltd. Shenzhen Branch.

6.1.2 Test Results

Test Requirement:	Part 22.913(a)(5), Part 24.232(c), Part 27.50 (h)(2) , Part 90.635 (h)(b)
Limit:	LTE Band 25: 2W, LTE Band 26: 7W(Part 22), LTE Band 26: 100W(Part 22), LTE Band 41: 2W
Test Setup:	
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

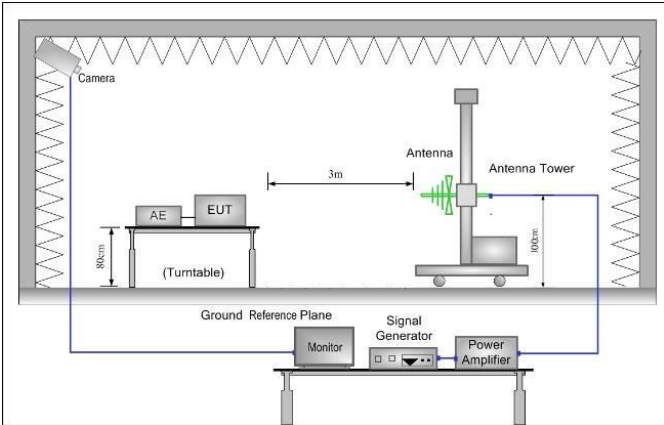
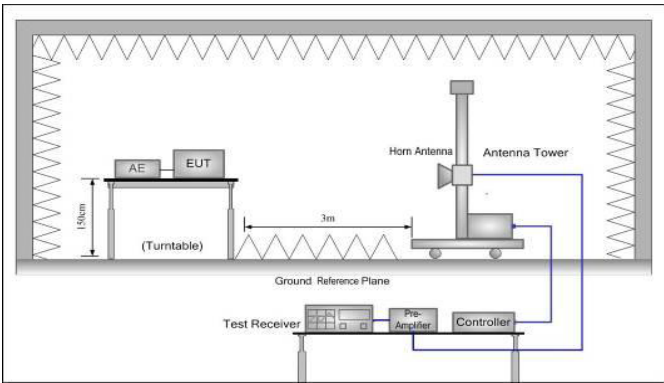
Measurement Data:

BAND	Bandwidth	Modulation	Channel	RB Configuration	Test Original Reports Level(dBm)	Re-Test Reports Level(dBm)
LTE Band 25	20MHz	QPSK	26140	1RB#0	22.69	22.26
LTE Band 25	20MHz	QPSK	26365	1RB#0	22.44	22.29
LTE Band 25	20MHz	QPSK	26590	1RB#0	22.41	22.42
BAND	Bandwidth	Modulation	Channel	RB Configuration	Test Original Reports Level(dBm)	Re-Test Reports Level(dBm)
LTE Band 26 (814-824)	10MHz	QPSK	26740	1RB#0	22.89	23.29
BAND	Bandwidth	Modulation	Channel	RB Configuration	Test Original Reports Level(dBm)	Re-Test Reports Level(dBm)
LTE Band 26 (824-849)	15MHz	QPSK	26865	1RB#0	23.02	22.65
LTE Band 26 (824-849)	15MHz	QPSK	26915	1RB#0	22.87	23.35
LTE Band 26 (824-849)	15MHz	QPSK	26965	1RB#0	23.33	23.61
BAND	Bandwidth	Modulation	Channel	RB Configuration	Test Original Reports Level(dBm)	Re-Test Reports Level(dBm)
LTE Band 41	20MHz	QPSK	39750	1RB#0	22.77	23.33
LTE Band 41	20MHz	QPSK	40620	1RB#0	22.72	23.48
LTE Band 41	20MHz	QPSK	41490	1RB#0	23.14	23.13

Remark:

	The Original Reports	Re-Test Reports
File name:	test report LTE	Test Report LTE rev1
Test location:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch	JianYan Testing Group Shenzhen Co., Ltd.
The output power is re-test at JianYan Testing Group Shenzhen Co., Ltd.		

6.2 Field strength of spurious radiation measurement

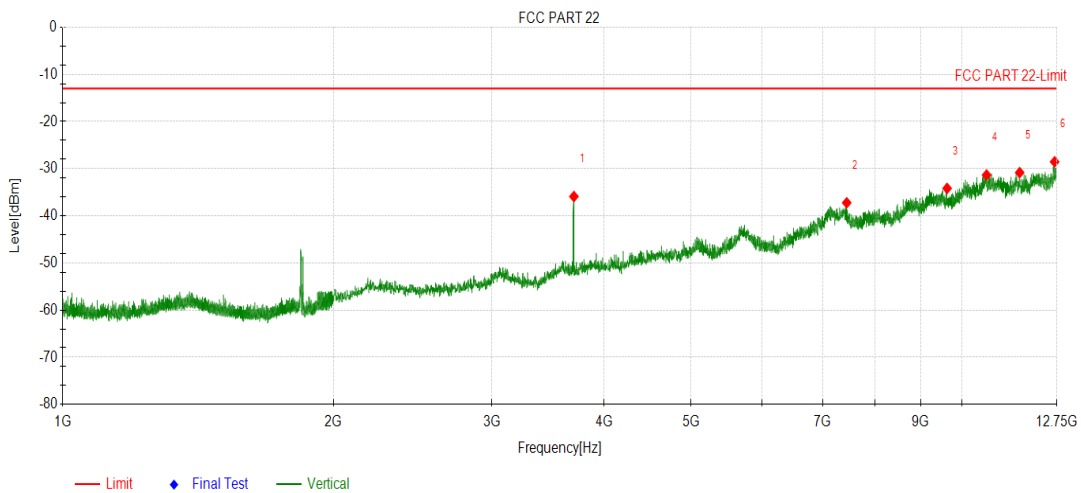
Test Requirement:	Part 22.917(a), Part 24.238 (a), Part 27.53(m), Part 90.691(a)
Limit:	LTE Band 25 & 26 & 41: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB (-13 dBm). LTE Band 41: For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. LTE Band 26(Part 90): For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.
Test setup:	Below 1GHz  Above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were

	varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data:

Remark: During the test, use Band Reject Filter Group to filter out LTE Band 25 & 26 fundamental signal

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

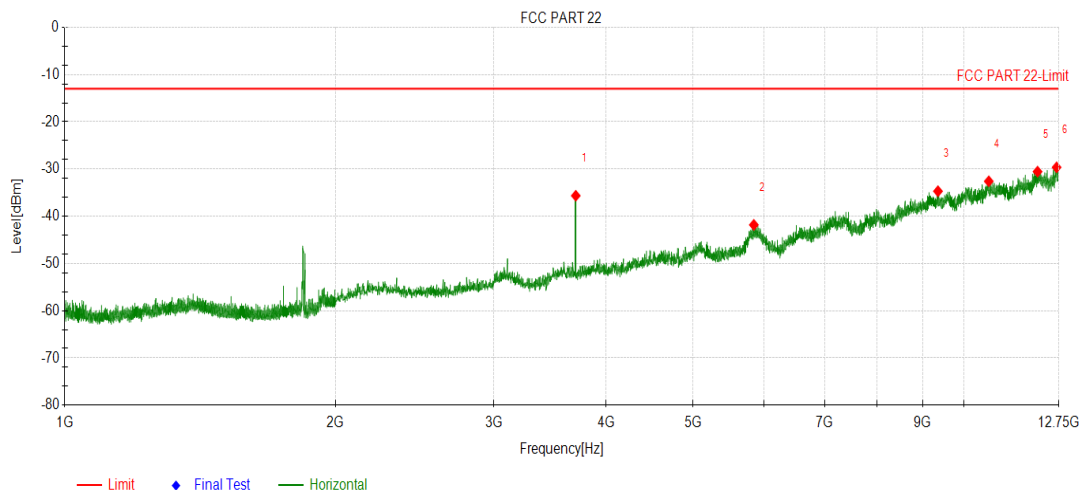


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3702.53	-34.24	-35.89	-13.00	22.89	-1.65	23	135	Vertical
2	7447.56	-50.02	-37.23	-13.00	24.23	12.79	119	128	Vertical
3	9631.15	-49.77	-34.17	-13.00	21.17	15.60	186	141	Vertical
4	10656.4	-51.06	-31.34	-13.00	18.34	19.72	245	156	Vertical
5	11599.7	-50.98	-30.83	-13.00	17.83	20.15	219	159	Vertical
6	12686.8	-50.66	-28.54	-13.00	15.54	22.12	321	164	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



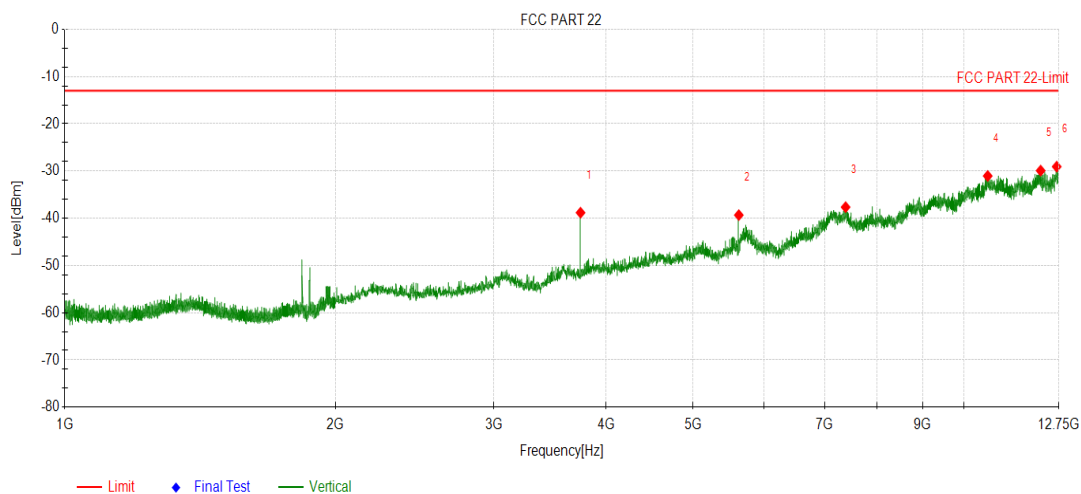
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3701.18	-33.51	-35.65	-13.00	22.65	-2.14	306	130	Horizontal
2	5840.43	-50.20	-41.82	-13.00	28.82	8.38	332	160	Horizontal
3	9361.06	-50.44	-34.69	-13.00	21.69	15.75	59	143	Horizontal
4	10661.8	-50.94	-32.59	-13.00	19.59	18.35	74	151	Horizontal
5	12082.1	-51.79	-30.55	-13.00	17.55	21.24	194	168	Horizontal
6	12685.5	-51.84	-29.63	-13.00	16.63	22.21	210	137	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

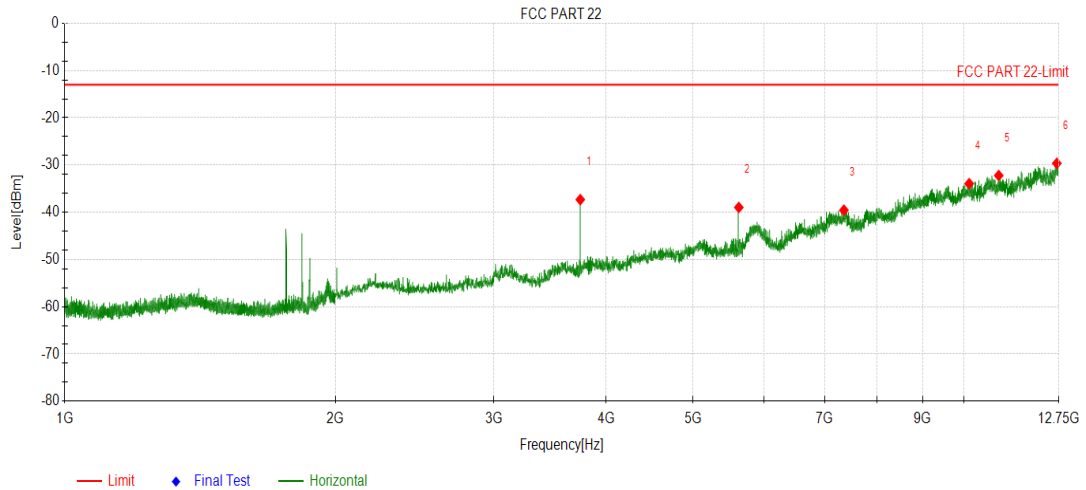


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3746.87	-37.39	-38.82	-13.00	25.82	-1.43	247	143	Vertical
2	5620.06	-45.80	-39.33	-13.00	26.33	6.47	176	150	Vertical
3	7388.43	-51.01	-37.64	-13.00	24.64	13.37	45	160	Vertical
4	10633.5	-50.80	-31.04	-13.00	18.04	19.76	348	157	Vertical
5	12178.9	-51.16	-29.91	-13.00	16.91	21.25	210	134	Vertical
6	12689.5	-51.21	-29.07	-13.00	16.07	22.14	308	122	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



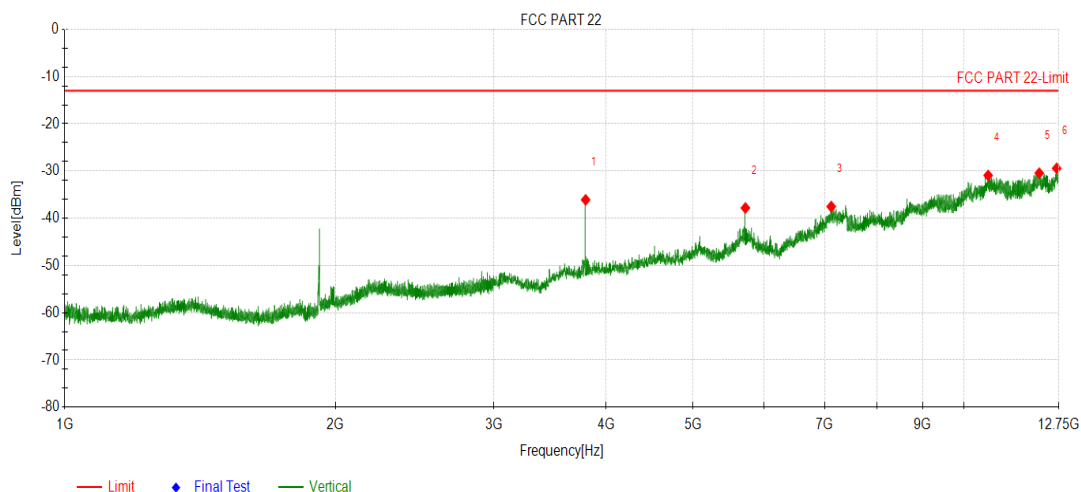
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3744.18	-35.39	-37.32	-13.00	24.32	-1.93	185	135	Horizontal
2	5620.06	-43.10	-38.97	-13.00	25.97	4.13	49	142	Horizontal
3	7356.18	-51.01	-39.56	-13.00	26.56	11.45	210	158	Horizontal
4	10140.4	-51.15	-33.94	-13.00	20.94	17.21	267	164	Horizontal
5	10937.2	-51.05	-32.22	-13.00	19.22	18.83	310	172	Horizontal
6	12693.5	-51.90	-29.64	-13.00	16.64	22.26	354	150	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

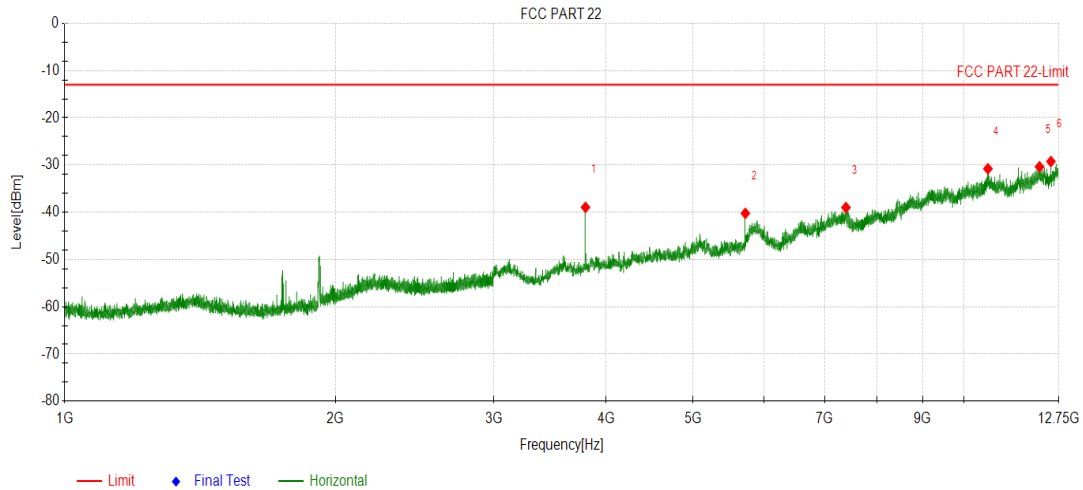


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3795.84	-34.91	-36.09	-13.00	23.09	-1.18	164	143	Vertical
2	5715.37	-46.20	-37.81	-13.00	24.81	8.39	158	125	Vertical
3	7121.81	-50.44	-37.52	-13.00	24.52	12.92	102	136	Vertical
4	10645.2	-50.66	-30.92	-13.00	17.92	19.74	340	160	Vertical
5	12134.5	-51.65	-30.45	-13.00	17.45	21.20	133	148	Vertical
6	12687.8	-51.55	-29.43	-13.00	16.43	22.12	8	171	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 25 Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal

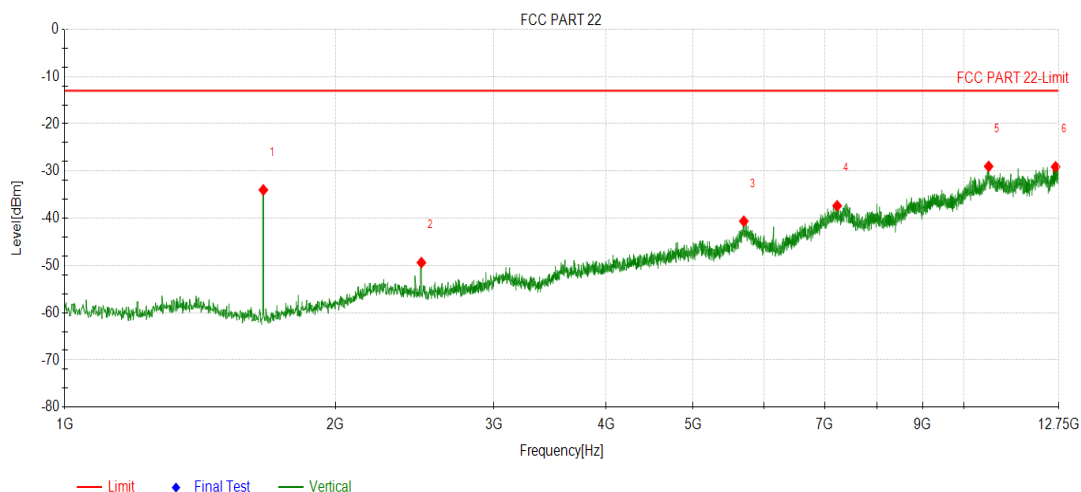


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	3794.62	-37.31	-38.95	-13.00	25.95	-1.64	49	160	Horizontal
2	5715.37	-45.42	-40.22	-13.00	27.22	5.20	162	151	Horizontal
3	7394.81	-50.40	-39.00	-13.00	26.00	11.40	109	132	Horizontal
4	10639.1	-49.56	-30.79	-13.00	17.79	18.77	254	140	Horizontal
5	12141.8	-51.41	-30.38	-13.00	17.38	21.03	320	150	Horizontal
6	12502.5	-49.61	-29.25	-13.00	16.25	20.36	148	128	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

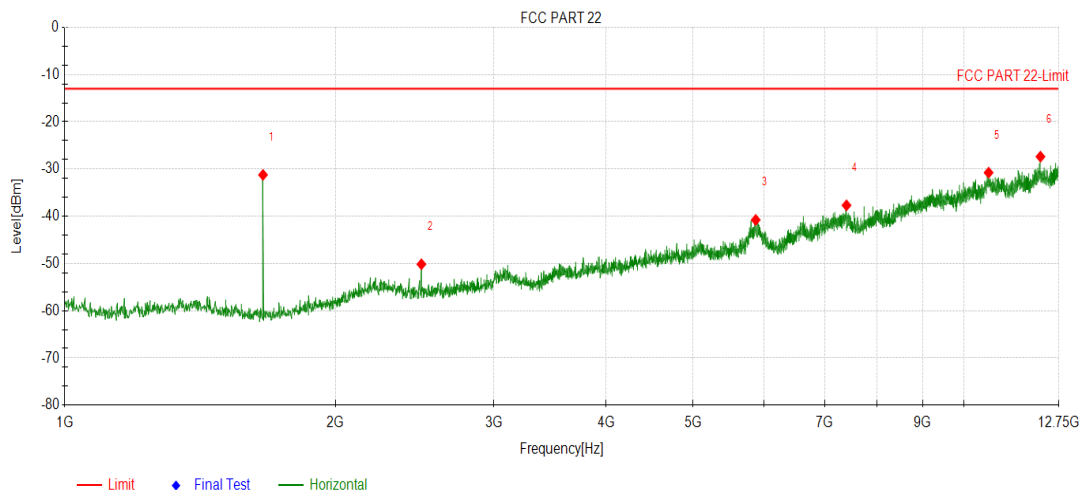


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1662.40	-22.88	-34.00	-13.00	21.00	-11.12	67	129	Vertical
2	2492.25	-43.16	-49.39	-13.00	36.39	-6.23	350	164	Vertical
3	5692.65	-49.14	-40.63	-13.00	27.63	8.51	240	150	Vertical
4	7230.43	-50.29	-37.37	-13.00	24.37	12.92	319	143	Vertical
5	10658.5	-49.65	-29.01	-13.00	16.01	20.64	201	168	Vertical
6	12651.5	-51.03	-29.11	-13.00	16.11	21.92	118	133	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal

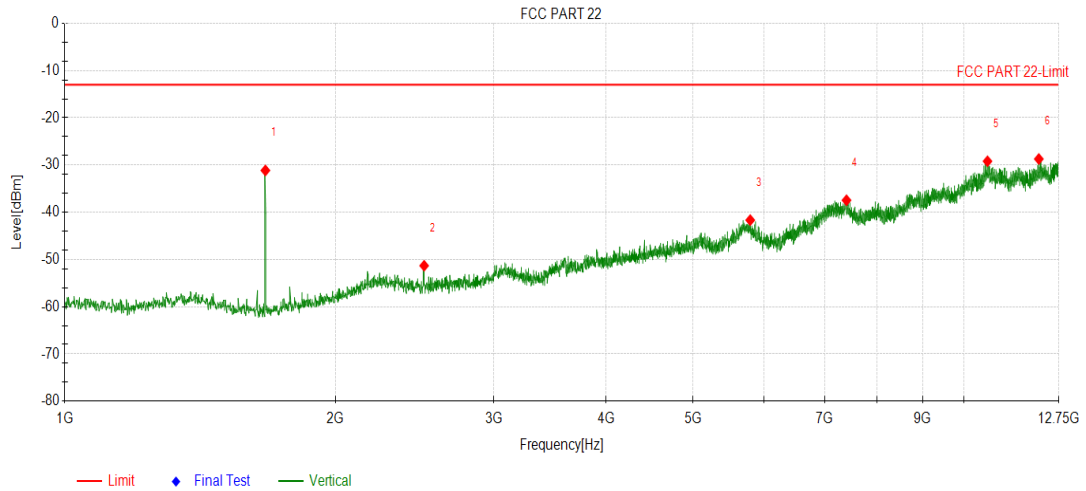


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1660.93	-20.22	-31.24	-13.00	18.24	-11.02	39	165	Horizontal
2	2492.25	-43.61	-50.15	-13.00	37.15	-6.54	246	128	Horizontal
3	5868.90	-49.56	-40.77	-13.00	27.77	8.79	149	135	Horizontal
4	7405.21	-49.21	-37.68	-13.00	24.68	11.53	199	146	Horizontal
5	10657.0	-50.03	-30.77	-13.00	17.77	19.26	268	170	Horizontal
6	12171.3	-48.65	-27.37	-13.00	14.37	21.28	311	155	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

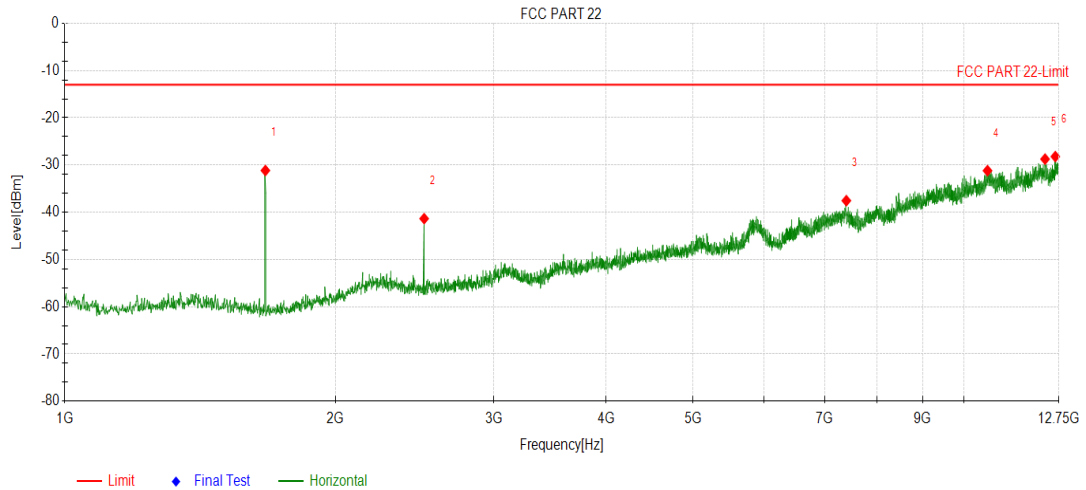


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1671.21	-20.02	-31.14	-13.00	18.14	-11.12	189	134	Vertical
2	2509.87	-45.12	-51.32	-13.00	38.32	-6.20	319	149	Vertical
3	5786.65	-49.75	-41.66	-13.00	28.66	8.09	246	165	Vertical
4	7405.21	-50.70	-37.45	-13.00	24.45	13.25	288	141	Vertical
5	10627.6	-49.83	-29.19	-13.00	16.19	20.64	76	153	Vertical
6	12119.9	-49.71	-28.72	-13.00	15.72	20.99	356	139	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal

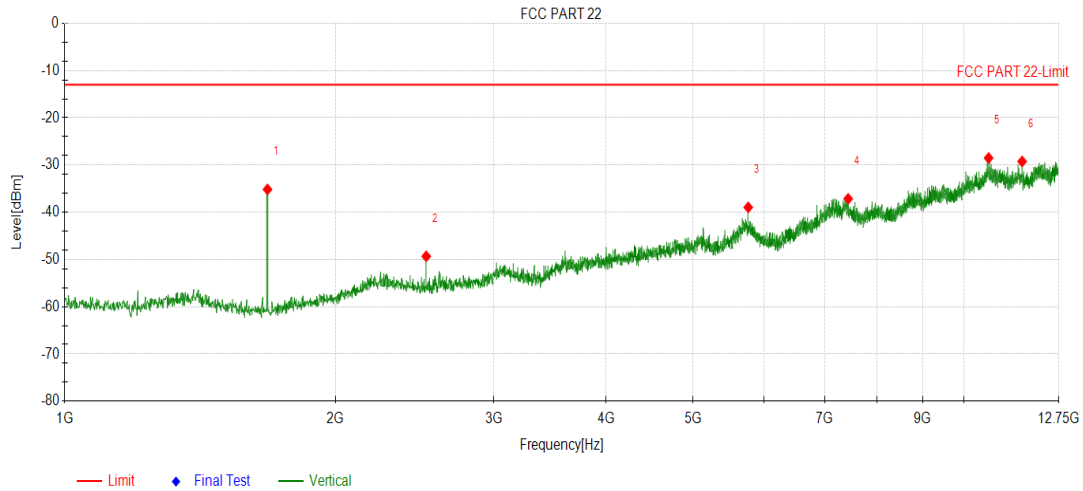


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1671.21	-20.11	-31.15	-13.00	18.15	-11.04	303	135	Horizontal
2	2509.87	-34.84	-41.35	-13.00	28.35	-6.51	289	140	Horizontal
3	7402.28	-49.10	-37.54	-13.00	24.54	11.56	149	168	Horizontal
4	10627.6	-50.30	-31.19	-13.00	18.19	19.11	35	155	Horizontal
5	12315.2	-49.89	-28.75	-13.00	15.75	21.14	194	144	Horizontal
6	12644.2	-50.16	-28.21	-13.00	15.21	21.95	244	160	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

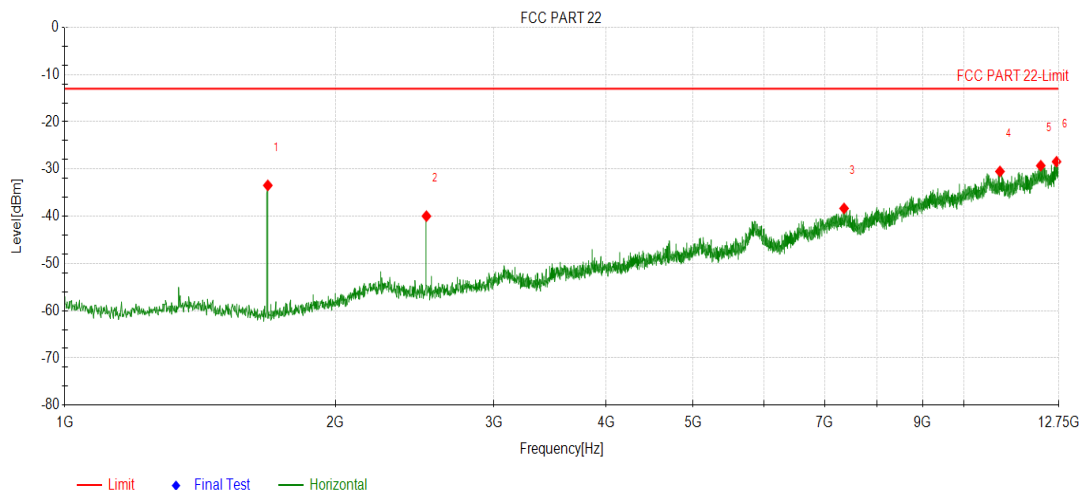


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1680.03	-24.03	-35.16	-13.00	22.16	-11.13	315	134	Vertical
2	2523.09	-43.17	-49.32	-13.00	36.32	-6.15	270	157	Vertical
3	5757.28	-47.26	-38.96	-13.00	25.96	8.30	165	161	Vertical
4	7437.53	-50.01	-37.15	-13.00	24.15	12.86	80	140	Vertical
5	10657.0	-49.14	-28.50	-13.00	15.50	20.64	120	124	Vertical
6	11613.1	-49.50	-29.24	-13.00	16.24	20.26	114	150	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 22) Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal

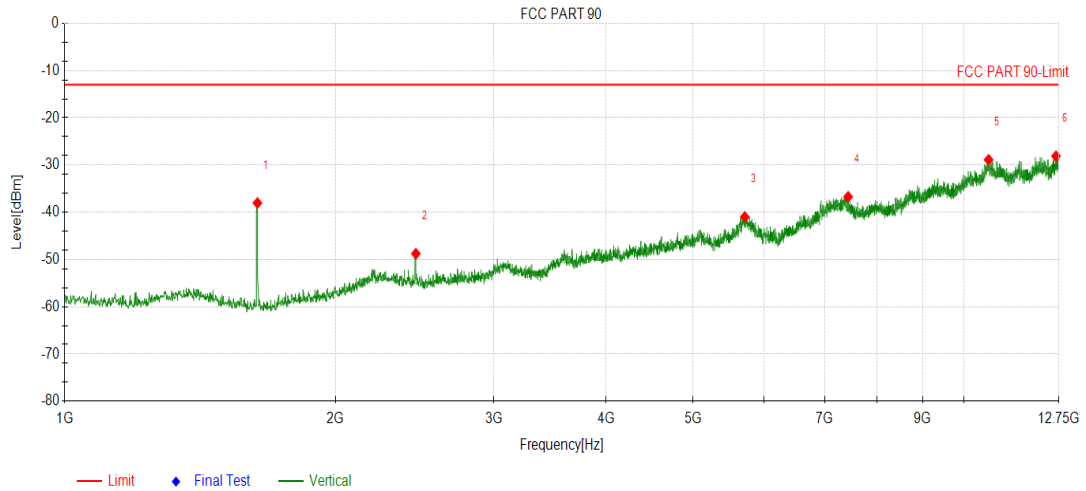


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1681.50	-22.41	-33.47	-13.00	20.47	-11.06	345	133	Horizontal
2	2524.56	-33.52	-39.97	-13.00	26.97	-6.45	10	149	Horizontal
3	7359.68	-49.68	-38.33	-13.00	25.33	11.35	248	166	Horizontal
4	10971.3	-49.55	-30.52	-13.00	17.52	19.03	197	137	Horizontal
5	12181.5	-50.60	-29.29	-13.00	16.29	21.31	135	154	Horizontal
6	12683.9	-50.57	-28.44	-13.00	15.44	22.13	280	143	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 90) Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

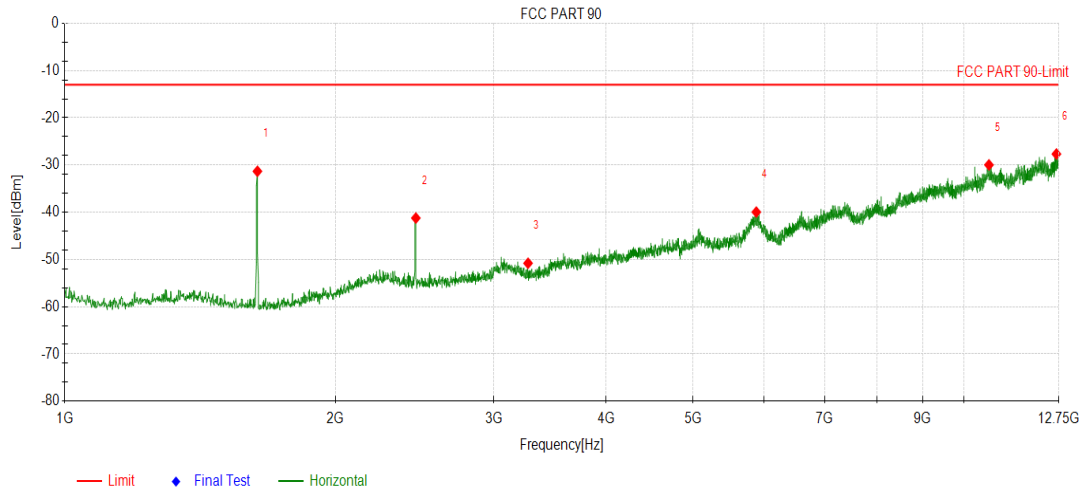


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1637.43	-26.94	-38.03	-13.00	25.03	-11.09	277	158	Vertical
2	2457.00	-42.59	-48.76	-13.00	35.76	-6.17	179	143	Vertical
3	5707.34	-49.64	-40.98	-13.00	27.98	8.66	15	132	Vertical
4	7436.06	-49.59	-36.71	-13.00	23.71	12.88	246	150	Vertical
5	10657.0	-49.52	-28.88	-13.00	15.88	20.64	348	164	Vertical
6	12666.2	-50.09	-28.12	-13.00	15.12	21.97	316	170	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 26 (Part 90) Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



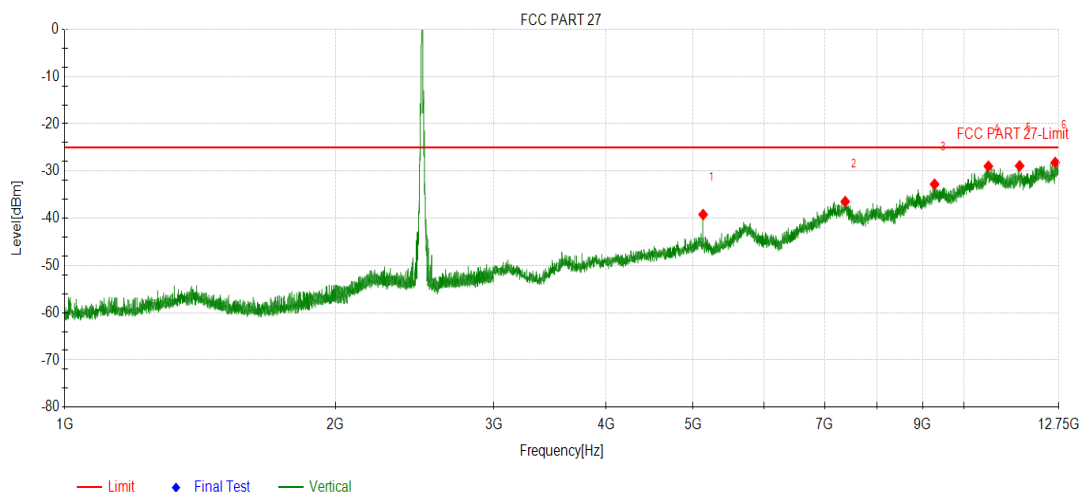
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	1637.43	-20.34	-31.32	-13.00	18.32	-10.98	188	148	Horizontal
2	2457.00	-34.68	-41.22	-13.00	28.22	-6.54	349	134	Horizontal
3	3275.09	-45.86	-50.79	-13.00	37.79	-4.93	3	152	Horizontal
4	5877.71	-48.81	-39.95	-13.00	26.95	8.86	176	140	Horizontal
5	10667.3	-49.28	-29.97	-13.00	16.97	19.31	249	161	Horizontal
6	12679.5	-49.78	-27.67	-13.00	14.67	22.11	301	159	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

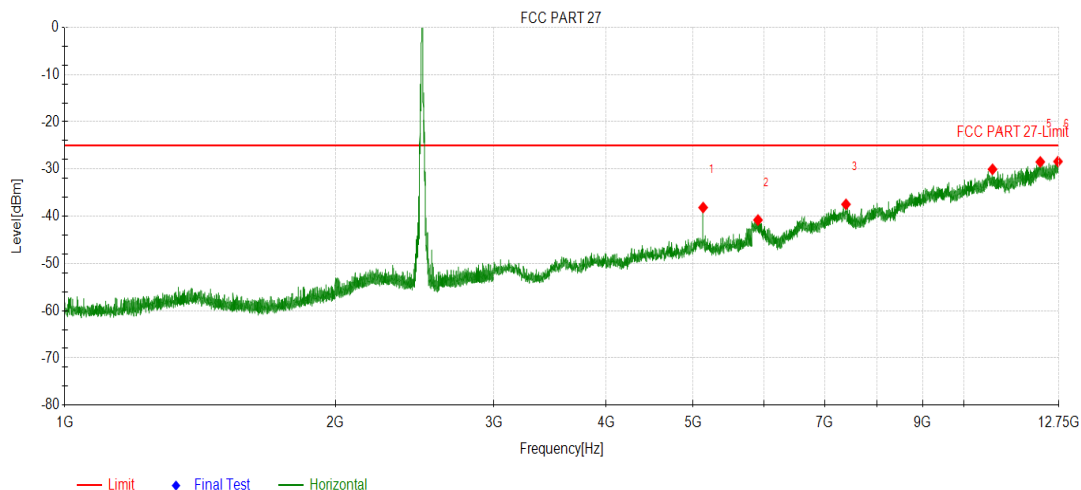


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5129.15	-43.66	-39.22	-25.00	14.22	4.44	132	154	Vertical
2	7381.40	-49.48	-36.47	-25.00	11.47	13.01	228	164	Vertical
3	9279.00	-48.80	-32.80	-25.00	7.80	16.00	155	164	Vertical
4	10651.3	-49.21	-28.99	-25.00	3.99	20.22	207	134	Vertical
5	11538.5	-49.36	-28.91	-25.00	3.91	20.45	199	157	Vertical
6	12640.3	-49.72	-28.19	-25.00	3.19	21.53	150	163	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx Low CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



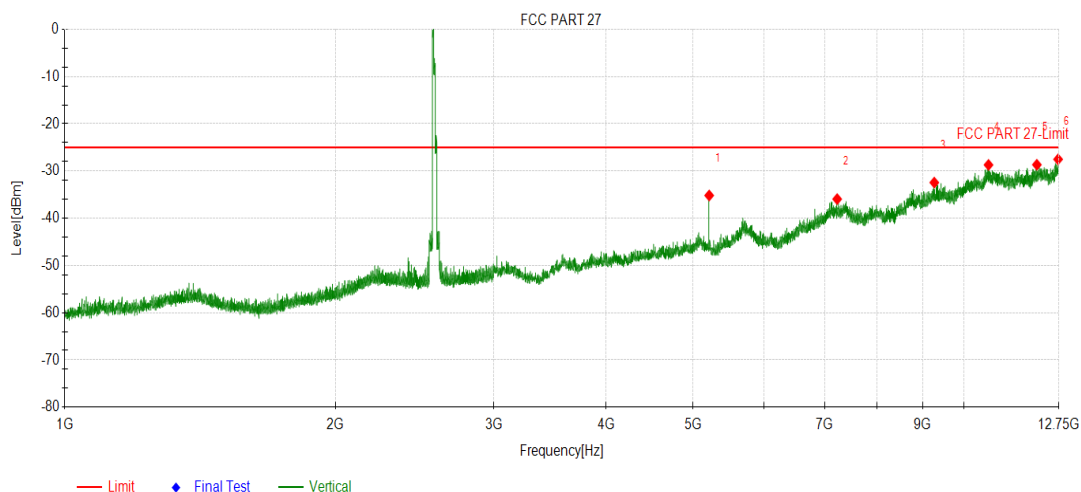
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5129.15	-42.13	-38.15	-25.00	13.15	3.98	146	157	Horizontal
2	5903.06	-49.30	-40.80	-25.00	15.80	8.50	214	134	Horizontal
3	7396.03	-48.87	-37.47	-25.00	12.47	11.40	132	160	Horizontal
4	10764.6	-48.95	-30.06	-25.00	5.06	18.89	229	154	Horizontal
5	12166.2	-49.62	-28.49	-25.00	3.49	21.13	197	137	Horizontal
6	12730.5	-50.54	-28.41	-25.00	3.41	22.13	146	142	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

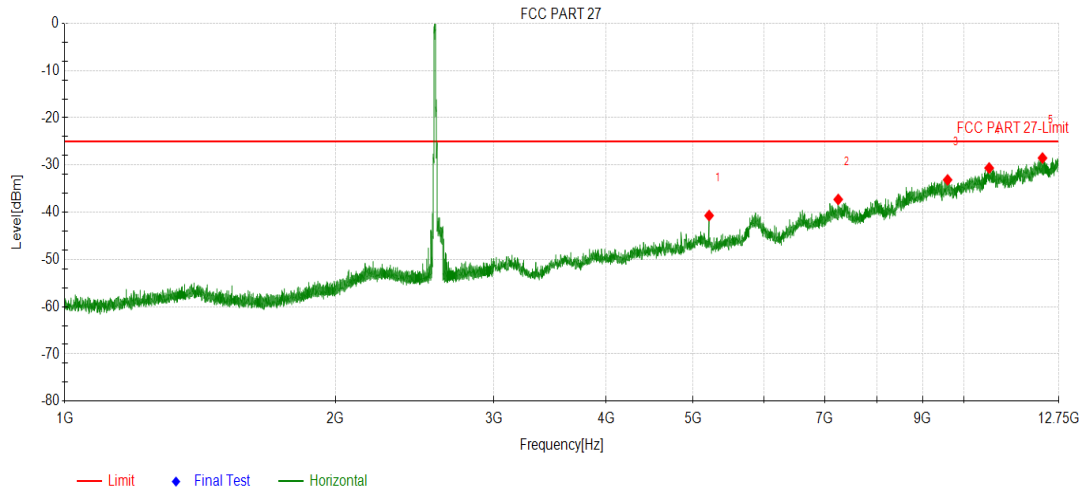


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5209.59	-39.01	-35.17	-25.00	10.17	3.84	151	156	Vertical
2	7230.28	-48.84	-35.94	-25.00	10.94	12.90	213	168	Vertical
3	9272.90	-48.40	-32.44	-25.00	7.44	15.96	142	132	Vertical
4	10654.9	-48.91	-28.70	-25.00	3.70	20.21	215	158	Vertical
5	12060.1	-49.26	-28.66	-25.00	3.66	20.60	176	145	Vertical
6	12734.1	-49.58	-27.51	-25.00	2.51	22.07	175	156	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx Mid CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



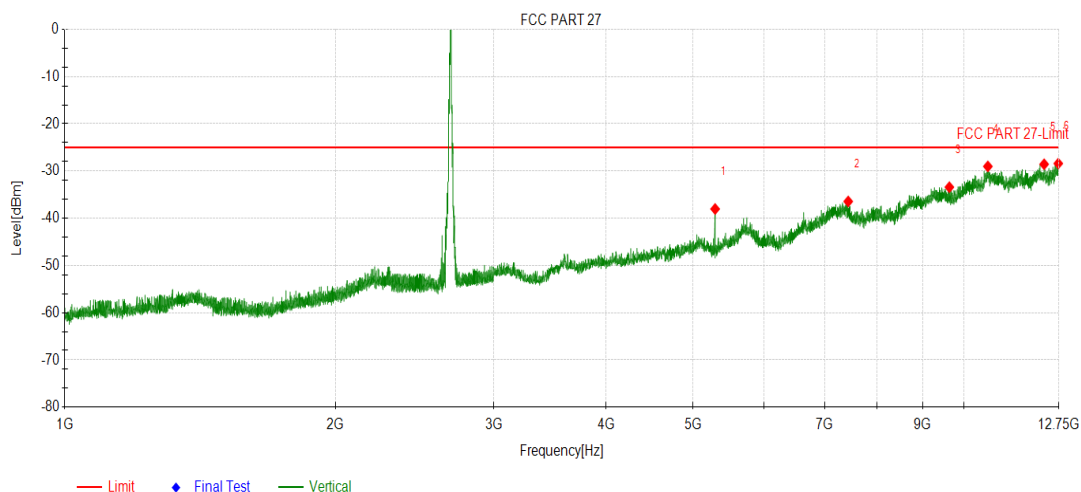
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5208.37	-44.06	-40.70	-25.00	15.70	3.36	112	159	Horizontal
2	5866.50	-48.61	-40.16	-25.00	15.16	8.45	245	157	Horizontal
3	7249.78	-48.46	-37.29	-25.00	12.29	11.17	146	131	Horizontal
4	9594.65	-49.65	-33.14	-25.00	8.14	16.51	212	156	Horizontal
5	10672.0	-49.50	-30.63	-25.00	5.63	18.87	124	157	Horizontal
6	12235.6	-49.64	-28.51	-25.00	3.51	21.13	234	149	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of below 1GHz and above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Vertical

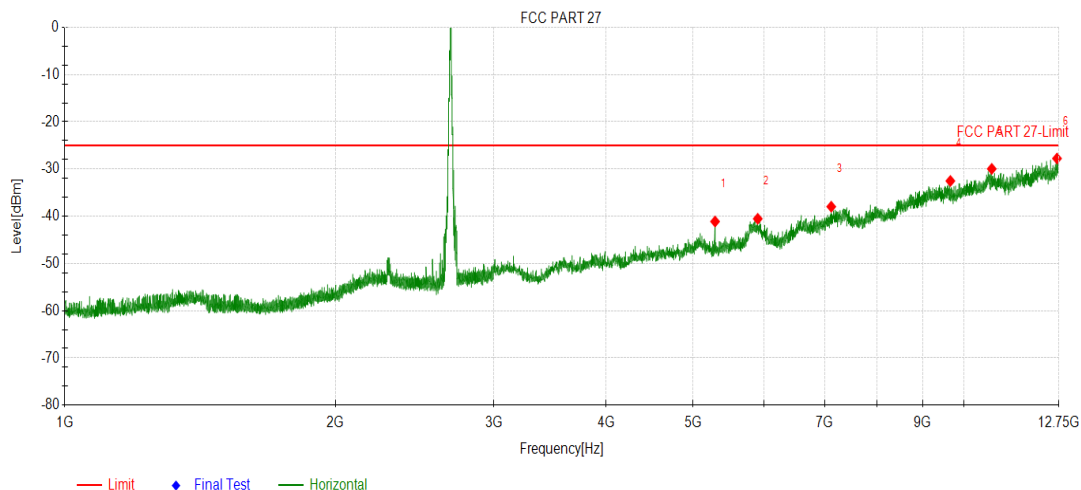


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5288.81	-41.47	-38.03	-25.00	13.03	3.44	155	159	Vertical
2	7437.46	-49.10	-36.44	-25.00	11.44	12.66	208	134	Vertical
3	9638.53	-48.95	-33.41	-25.00	8.41	15.54	178	157	Vertical
4	10637.9	-49.27	-29.02	-25.00	4.02	20.25	180	136	Vertical
5	12286.8	-49.44	-28.56	-25.00	3.56	20.88	166	154	Vertical
6	12740.2	-50.52	-28.41	-25.00	3.41	22.11	192	144	Vertical

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.

Product Name:	Tracker	Product model:	cp311A
Test By:	Mike	Test mode:	Band 41 Tx High CH
Test Voltage:	DC 3.85V	Polarization:	Horizontal



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Height [cm]	Polarity
1	5288.81	-44.20	-41.11	-25.00	16.11	3.09	177	165	Horizontal
2	5899.40	-49.08	-40.53	-25.00	15.53	8.55	186	137	Horizontal
3	7121.81	-48.71	-37.96	-25.00	12.96	10.75	179	149	Horizontal
4	9662.90	-48.41	-32.52	-25.00	7.52	15.89	180	164	Horizontal
5	10743.9	-48.87	-29.96	-25.00	4.96	18.91	163	154	Horizontal
6	12698.8	-49.69	-27.76	-25.00	2.76	21.93	196	133	Horizontal

Remark:

- Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of above 12.75GHz are lower than the limit 20dB and not show in test report.

7. Appendix

The below Appendix was detail result tested by SGS-CSTC Standards Technical Services, Co., Ltd.Shenzhen Branch.

(Date of Test: 2019/1/10-2019/1/24).

Appendix	Item
Appendix B.1 -LTE BAND 25	LTE Band 25
Appendix B.2 of LTE BAND 26(814MHz-824MHz)	LTE Band 26(814MHz-824MHz)
Appendix B.3 of LTE BAND 26(824MHz-849MHz)	LTE Band 26(824MHz-849MHz)
Appendix B.4 of LTE BAND 41	LTE Band 41