

RADIO TEST REPORT FCC ID: 2AP3S-CUBESHADOW

Product:Cube TrackerTrade Mark:CUBEModel No.:CUBE SHADOWFamily Model:C7003Report No.:S18103101101EIssue Date:Nov 16, 2018

Prepared for

Cube Tracker LLC 46980, 86th Ave, Decatur, MI 49045, US, Decatur, Michigan, United States

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd. 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street Bao'an District, Shenzhen 518126 P.R. China Tel.: +86-755-6115 6588 Fax.: +86-755-6115 6599 Website:http://www.ntek.org.cn





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Certificate #4298.01

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TEST RESULT

Complied

1 TEST RESULT CERTIFICATION

Applicant's name:	Cube Tracker LLC	
Address:	46980, 86th Ave, Decatur, MI 49045, US, Decatur, Michigan, United States	
Manufacturer's Name:	Shenzhen Intellink Technology Co.,Ltd	
Address:	#919, 9/F, Tianjian Chuangye Mansion, 7 Shangbao Road, Futian, Shenzhen,Guangdong, China	
Product description		
Product name:	Cube Tracker	
Model and/or type reference:	CUBE SHADOW	
Family Model:	C7003	

Measurement Procedure Used:

APPLICABLE STANDARDS

APPLICABLE STANDARD/ TEST PROCEDURE

FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart C

KDB 174176 D01 Line Conducted FAQ v01r01

ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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The test results of this report relate only to the tested sample identified in this report.

Date of Test	: 31 Oct. 2018 ~ 16 Nov. 2018	
Testing Engineer	:(Mary Hu)	
Technical Manager	Jason chen	
	(Jason Chen) Sam . Chew	
Authorized Signatory	:(Sam Chen)	



FCC Part15 (15.247), Subpart C				
Standard Section	Test Item	Verdict	Remark	
15.207	Conducted Emission	PASS		
15.247 (a)(2)	6dB Bandwidth	PASS		
15.247 (b) Peak Output Power		PASS		
15.209 (a) 15.205 (a)	Radiated Spurious Emission	PASS		
15.247 (e)	Power Spectral Density	PASS		
15.247 (d)	Band Edge Emission	PASS		
15.247 (d) Spurious RF Conducted Emission PASS		PASS		
15.203	Antenna Requirement	PASS		

Remark:

 "N/A" denotes test is not applicable in this Test Report.
 All test items were verified and recorded according to the standards and without any deviation during the test.



3 FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description CNAS-Lab.	: The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L5516.
IC-Registration	The Certificate Registration Number is 9270A-1.
FCC- Accredited	Test Firm Registration Number: 463705. Designation Number: CN1184
A2LA-Lab.	The Certificate Registration Number is 4298.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm Site Location	 Shenzhen NTEK Testing Technology Co., Ltd. 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y\pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(30MHz~1GHz)	±2.64dB
5	All emissions, radiated(1GHz~6GHz)	±2.40dB
6	All emissions, radiated(>6GHz)	±2.52dB
7	Temperature	±0.5°C
8	Humidity	±2%



4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification				
Equipment Cube Tracker				
Trade Mark	CUBE			
FCC ID	2AP3S-CUBESHADOW			
Model No.	CUBE SHADOW			
Family Model	C7003			
Model Difference	All the model are the same circuit and RF module, except the Model No			
Operating Frequency	2402MHz~2480MHz			
Modulation	GFSK			
Number of Channels	40 Channels			
Bluetooth Version	BT V4.0(BLE)			
Antenna Type	Panel antenna			
Antenna Gain	0 dBi			
Power supply	DC supply: DC 3.7V 35mAh			
	Adapter supply:			
HW Version	R1			
SW Version	V005			

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Note: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.



Revision History					
Report No.	Version	Description	Issued Date		
S18103101101E	Rev.01	Initial issue of report	Nov 16, 2018		

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5 DESCRIPTION OF TEST MODES

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To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (1Mbps for GFSK modulation) were used for all test.

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement -X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

Carrier Frequency and Channel list:

Channel	Frequency(MHz)
0	2402
1	2404
19	2440
20	2442
38	2478
39	2480

Note: fc=2402MHz+k×2MHz k=0 to 39

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Test Cases				
Test Item	Data Rate/ Modulation			
Test item	Bluetooth 4.0_LE / GFSK			
AC Conducted Emission	Mode 1: normal link mode			
	Mode 1: normal link mode			
Radiated Test	Mode 2: Bluetooth Tx Ch00_2402MHz_1Mbps			
Cases	Mode 3: Bluetooth Tx Ch19_2440MHz_1Mbps			
	Mode 4: Bluetooth Tx Ch39_2480MHz_1Mbps			
Conducted Test	Mode 2: Bluetooth Tx Ch00_2402MHz_1Mbps			
Conducted Test	Mode 3: Bluetooth Tx Ch19_2440MHz_1Mbps			
Cases	Mode 4: Bluetooth Tx Ch39_2480MHz_1Mbps			

Note:

1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.

2. AC power line Conducted Emission was tested under maximum output power.

3. For radiated test cases, the worst mode data rate 1Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.

4. EUT is set to continuous transmission mode. duty cycle greater than 98%.

5. EUT built-in battery-powered, EUT uses new battery for testing.

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NTE SETUP OF EQUIPMENT UNDER TEST 6 6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM For Radiated Test Cases EUT For Conducted Test Cases C1 Measurement EUT Instrument Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.



6.2 SUPPORT EQUIPMENT

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

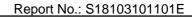
Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note	

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	RF Cable	YES	NO	0.1m

Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in [Length] column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

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6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

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Radiation& Conducted Test equipment

		estequipment					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibrati on period
1	Spectrum Analyzer	Aglient	E4407B	MY45108040	2018.05.19	2019.05.18	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2018.10.08	2019.10.07	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2018.10.08	2019.10.07	1 year
4	Test Receiver	R&S	ESPI7	101318	2018.05.19	2019.05.18	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2018.04.08	2019.04.07	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2018.05.19	2020.05.18	2 year
7	Horn Antenna	EM	EM-AH-1018 0	2011071402	2018.04.08	2019.04.07	1 year
8	Broadband Horn Antenna	SCHWARZBE CK	BBHA 9170	803	2017.12.06	2018.12.06	1 year
9	Amplifier	EMC	EMC051835 SE	980246	2018.08.05	2019.08.04	1 year
10	Active Loop Antenna	SCHWARZBE CK	FMZB 1519 B	055	2017.12.06	2018.12.06	1 year
11	Power Meter	DARE	RPR3006W	15I00041SN 084	2018.08.05	2019.08.04	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2017.04.21	2020.04.20	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2017.04.21	2020.04.20	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2017.04.21	2020.04.20	3 year
15	High Test Cable(1G-40G Hz)	N/A	R-04	N/A	2017.04.21	2020.04.20	3 year
16	Filter	TRILTHIC	2400MHz	29	2017.04.19	2020.04.18	3 year
17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test And this temporary antenna connector is listed within the instrument list



AC Co	AC Conduction Test equipment						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2018.05.19	2019.05.18	1 year
2	LISN	R&S	ENV216	101313	2018.10.08	2019.10.07	1 year
3	LISN	SCHWARZBE CK	NNLK 8129	8129245	2018.05.19	2019.05.18	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2018.05.19	2020.05.18	2 year
5	Test Cable (9KHz-30MH z)	N/A	C01	N/A	2017.04.21	2020.04.20	3 year
6	Test Cable (9KHz-30MH z)	N/A	C02	N/A	2017.04.21	2020.04.20	3 year
7	Test Cable (9KHz-30MH z)	N/A	C03	N/A	2017.04.21	2020.04.20	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Aux Equipment & Test Cable which is scheduled for calibration every 2 or 3 years.



7 TEST REQUIREMENTS

7.1 CONDUCTED EMISSIONS TEST

7.1.1 Applicable Standard

According to FCC Part 15.207(a) and KDB 174176 D01 Line Conducted FAQ v01r01

7.1.2 Conformance Limit

	Conducted Emission Limit				
Frequency(MHz)	Quasi-peak	Average			
0.15-0.5	66-56*	56-46*			
0.5-5.0	56	46			
5.0-30.0	60	50			

Note: 1. *Decreases with the logarithm of the frequency

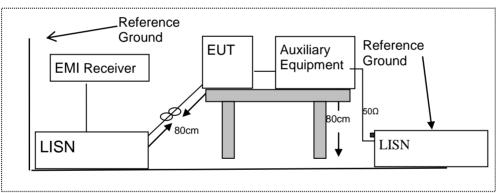
2. The lower limit shall apply at the transition frequencies

3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.1.4 Test Configuration



7.1.5 Test Procedure

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
- 2. The EUT was placed on a table which is 0.8m above ground plane.
- 3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
- 5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 6. LISN at least 80 cm from nearest part of EUT chassis.
- 7. The frequency range from 150KHz to 30MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
- 9. For the actual test configuration, please refer to the related Item -EUT Test Photos.



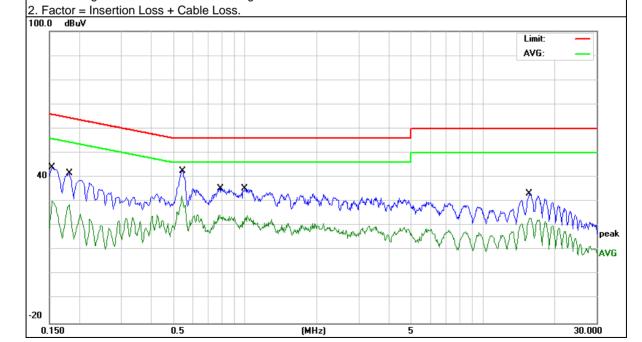
7.1.6 **Test Results**

EUT:	Cube Tracker	Model Name :	CUBE SHADOW
Temperature:	26 ℃	Relative Humidity:	54%
		Phase :	L
Test Voltage :	DC 5V from adapter AC 120V/60Hz	Test Mode:	Normal Link

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1539	34.43	9.75	44.18	65.78	-21.60	QP
0.1539	20.55	9.75	30.30	55.78	-25.48	AVG
0.1819	31.78	9.76	41.54	64.39	-22.85	QP
0.1819	18.85	9.76	28.61	54.39	-25.78	AVG
0.5460	32.85	9.74	42.59	56.00	-13.41	QP
0.5460	22.69	9.74	32.43	46.00	-13.57	AVG
0.7900	25.75	9.74	35.49	56.00	-20.51	QP
0.7900	14.76	9.74	24.50	46.00	-21.50	AVG
0.9980	25.50	9.74	35.24	56.00	-20.76	QP
0.9980	14.60	9.74	24.34	46.00	-21.66	AVG
15.6659	23.01	10.11	33.12	60.00	-26.88	QP
15.7899	13.34	10.12	23.46	50.00	-26.54	AVG

Remark:

1. All readings are Quasi-Peak and Average values.



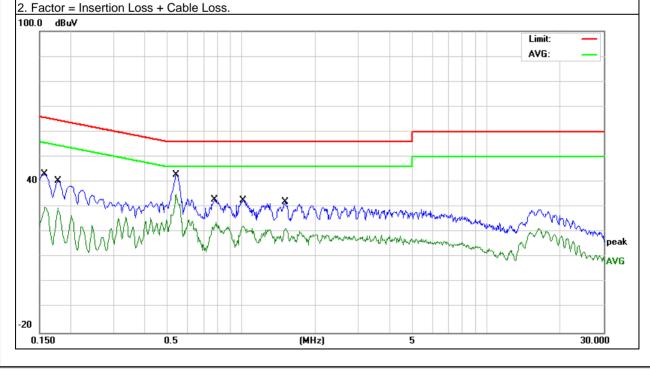


EUT:	Cube Tracker	Model Name :	CUBE SHADOW
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	Ν
Test Voltage :	DC 5V from adapter AC 120V/60Hz	Test Mode:	Normal Link

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Demerle
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1580	33.33	9.74	43.07	65.56	-22.49	QP
0.1580	20.27	9.74	30.01	55.56	-25.55	AVG
0.1780	30.61	9.73	40.34	64.57	-24.23	QP
0.1780	19.96	9.73	29.69	54.57	-24.88	AVG
0.5420	33.16	9.75	42.91	56.00	-13.09	QP
0.5420	25.23	9.75	34.98	46.00	-11.02	AVG
0.7780	23.11	9.75	32.86	56.00	-23.14	QP
0.7780	14.15	9.75	23.90	46.00	-22.10	AVG
1.0180	22.98	9.75	32.73	56.00	-23.27	QP
1.0180	12.81	9.75	22.56	46.00	-23.44	AVG
1.5100	22.28	9.78	32.06	56.00	-23.94	QP
1.5100	11.79	9.78	21.57	46.00	-24.43	AVG

Remark:

1. All readings are Quasi-Peak and Average values.





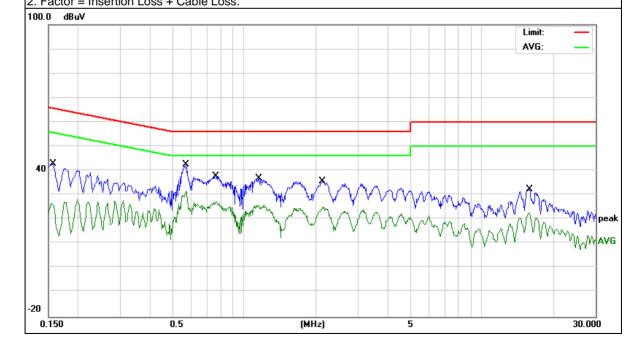
EUT: Cube Tracker		Model Name :		CUBE SHAI	DOM			
Temperature: 25 °C				Relative Hu	umidity:	55%		
Pressure:		1010hPa			Phase :		L	
Test Voltage :		DC 5V 1 240V/50H	from adapter Iz	AC	Test Mode:		Normal Link	
	-							-
Frequency	Rea	ding Level	Correct Factor	Me	asure-ment	Limits	Margin	Remark
(MHz)	((dBµV)	(dB)		(dBµV)	(dBµV)	(dB)	Remark
0.1580		33.10	9.75	42.85		65.56	-22.71	QP
0.1580	16.96		9.75		26.71	55.56	-28.85	AVG
0.5699		32.82	9.74	42.56		56.00	-13.44	QP
0.5699		21.73	9.74		31.47	46.00	-14.53	AVG
0.7620		27.98	9.74		37.72	56.00	-18.28	QP
0.7620		17.59	9.74		27.33	46.00	-18.67	AVG
1.1499		27.06	9.74		36.80	56.00	-19.20	QP
1.1499		16.23	9.74		25.97	46.00	-20.03	AVG
2.1339		25.72	9.78		35.50	56.00	-20.50	QP
2.1339		15.35	9.78		25.13	46.00	-20.87	AVG
15.8099		22.11	10.12		32.23	60.00	-27.77	QP
15.8099		12.73	10.12		22.85	50.00	-27.15	AVG

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Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.



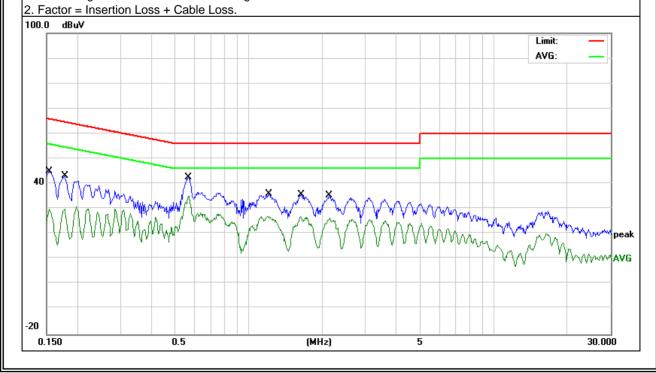


EUT:	Cube Tracker	Model Name :	CUBE SHADOW
Temperature:	25 ℃	Relative Humidity:	55%
Pressure:	1010hPa	Phase :	Ν
Test Voltage :	DC 5V from adapter AC 240V/50Hz	Test Mode:	Normal Link

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Dement
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1539	35.15	9.74	44.89	65.78	-20.89	QP
0.1539	20.33	9.74	30.07	55.78	-25.71	AVG
0.1779	33.29	9.73	43.02	64.58	-21.56	QP
0.1779	20.17	9.73	29.90	54.58	-24.68	AVG
0.5699	32.66	9.75	42.41	56.00	-13.59	QP
0.5699	25.42	9.75	35.17	46.00	-10.83	AVG
1.2099	26.12	9.75	35.87	56.00	-20.13	QP
1.2099	17.31	9.75	27.06	46.00	-18.94	AVG
1.6379	25.86	9.78	35.64	56.00	-20.36	QP
1.6379	17.06	9.78	26.84	46.00	-19.16	AVG
2.1339	25.55	9.80	35.35	56.00	-20.65	QP
2.1339	16.48	9.80	26.28	46.00	-19.72	AVG

Remark:

1. All readings are Quasi-Peak and Average values.





7.2 RADIATED SPURIOUS EMISSION

7.2.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

7.2.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). According to FCC Part15.205, Restricted bands

According to FCC Fait 15.205, Restricted bands							
MHz	MHz	MHz	GHz				
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15				
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46				
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75				
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5				
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2				
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5				
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7				
6.26775-6.26825	123-138	2200-2300	14.47-14.5				
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2				
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4				
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12				
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0				
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8				
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5				
12.57675-12.57725	322-335.4	3600-4400	(2)				
13.36-13.41							

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	2400/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Fraguanov/(MHz)	Class B (dBuV/m) (at 3M)				
Frequency(MHz)	PEAK	AVERAGE			
Above 1000	74	54			

Remark :1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz: Distance extrapolation factor =40log(Specific distance/ test distance)(dB); Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz: Distance extrapolation factor =20log(Specific distance/ test distance)(dB); Limit line=Specific limits(dBuV) + distance extrapolation factor.

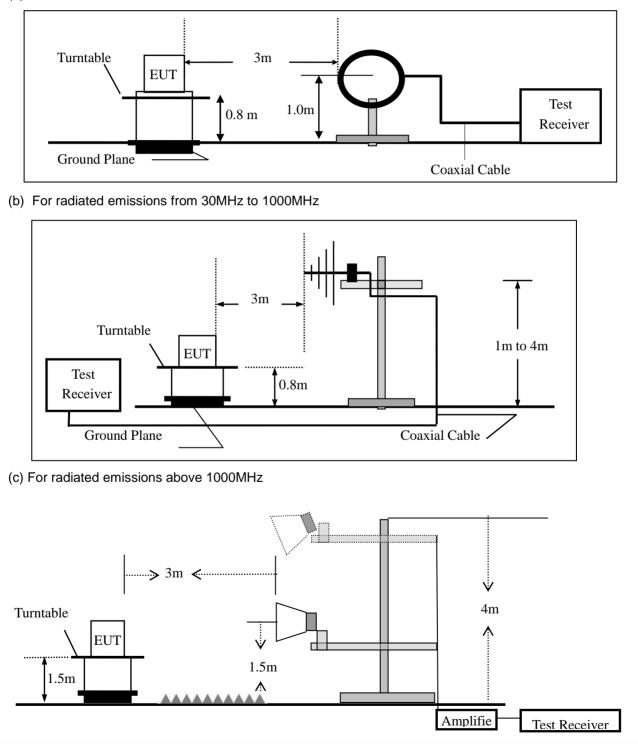


7.2.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.2.4 Test Configuration

(a) For radiated emissions below 30MHz





7.2.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Spectrum Parameter	Setting				
Attenuation	Auto				
Start Frequency	1000 MHz				
Stop Frequency	10th carrier harmonic				
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average				

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- e. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- f. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- g. For the actual test configuration, please refer to the related Item –EUT Test Photos. Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported



During the radiated emission t	During the radiated emission test, the Spectrum Analyzer was set with the following configurations:								
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth						
30 to 1000	QP	120 kHz	300 kHz						
Above 1000	Above 1000		1 MHz						
Above 1000	Average	1 MHz	10 Hz						

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz])., the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

7.2.6 Test Results

Spurious Emission	Spurious Emission below 30MHz (9KHz to 30MHz)								
EUT: Cube Tracker Model No.: CUBE SHADOW									
Temperature:	20 ℃	Relative Humidity:	48%						
Test Mode:	Mode2/Mode3/Mode4	Test By:	Mary Hu						

Freq.	Ant.Pol.	Emission L	.evel(dBuV/m)	Limit 3	m(dBuV/m)	Over(dB)		
(MHz)	H/V	PK AV		PK	PK AV		AV	

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.



Spurious Emission below 1GHz (30MHz to 1GHz)

All the modulation	n modes have been tested,	and the worst re	esult was repor	t as below:

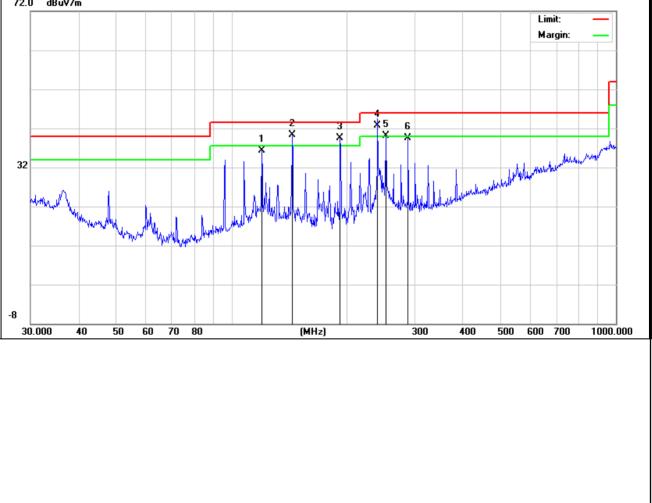
EUT:	Cube Tracker	Model Name :	CUBE SHADOW
Temperature:	20 ℃	Relative Humidity:	48%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 3.7V		

Polar (H/V) V V V V V	Frequency	Meter Reading	FactorEmission LevelLimitsMarg		Margin	Remark	
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	119.8555	23.03	13.18	36.21	43.50	-7.29	QP
V	143.8295	27.12	13.18	40.30	43.50	-3.20	QP
V	191.7450	29.38	10.07	39.45	43.50	-4.05	QP
V	239.9874	29.92	12.88	42.80	46.00	-3.20	QP
V	252.0627	25.10	15.06	40.16	46.00	-5.84	QP
V	287.9904	24.02	15.58	39.60	46.00	-6.40	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit









EUT:		Cube T	racker	Model No.:			CUBE SHADOW				
emperature: 20 °C				Relative Humidity:			48%				
est Mode:		Mode2/	Mode3/Mo	ode4	Test	By:	Mary Hu				
Frequenc y	Read Level	Cable loss	Antenna Factor	Prea Fac		Emission Level	Limits		Margin	Remark	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dl	B)	(dBµV/m)	(dBµV	/m)	(dB)		
			Low	Chan	nel (2	402 MHz)-	Above '	1G			
4804.34	61.46	5.21	35.59	44.	30	57.96	74.0	0	-16.04	Pk	Vertical
4804.34	40.47	5.21	35.59	44.	30	36.97	54.0	0	-17.03	AV	Vertical
7206.69	56.40	6.48	36.27	44.	60	54.55	74.0	0	-19.45	Pk	Vertical
7206.69	40.20	6.48	36.27	44.	60	38.35	54.0	0	-15.65	AV	Vertical
4804.45	62.80	5.21	35.55	44.	30	59.26	74.0	0	-14.74	Pk	Horizonta
4804.45	39.86	5.21	35.55	44.30		36.32	54.0	0	-17.68	AV	Horizonta
7206.72	61.84	6.48	36.27	44.52		60.07	74.0	0	-13.93	Pk	Horizonta
7206.72	45.62	6.48	36.27	44.		43.85	54.00		-10.15	AV	Horizonta
			Mid	Chanı	nel (2	440 MHz)-/	Above 1	1G			
4880.68	62.74	5.21	35.66	44.	20	59.41	74.0	0	-14.59	Pk	Vertical
4880.68	43.50	5.21	35.66	44.	44.20 40.17		54.0	0	-13.83	AV	Vertical
7319.58	59.89	7.10	36.50	44.	43	59.06	74.0	0	-14.94	Pk	Vertical
7319.58	39.52	7.10	36.50	44.	43	38.69	54.0	0	-15.31	AV	Vertical
4880.58	64.73	5.21	35.66	44.	20	61.40	74.0	0	-12.60	Pk	Horizonta
4880.58	48.80	5.21	35.66	44.	20	45.47	54.0	0	-8.53	AV	Horizonta
7319.91	59.84	7.10	36.50	44.	43	59.01	74.0	0	-14.99	Pk	Horizonta
7319.91	37.75	7.10	36.50	44.	43	36.92	54.0	0	-17.08	AV	Horizonta
			High	Chan	nel (2	480 MHz)-	Above	1G			
4960.34	60.47	5.21	35.52	44.	21	56.99	74.0		-17.01	Pk	Vertical
4960.34	44.72	5.21	35.52	44.	21	41.24	54.0	0	-12.76	AV	Vertical
7440.47	61.80	7.10	36.53	44.	60	60.83	74.0	0	-13.17	Pk	Vertical
7440.47	40.73	7.10	36.53	44.	60	39.76	54.0	0	-14.24	AV	Vertical
4960.49	61.19	5.21	35.52	44.	21	57.71	74.0	0	-16.29	Pk	Horizonta
4960.49	42.83	5.21	35.52	44.	21	39.35	54.0	0	-14.65	AV	Horizonta
7440.28	61.72	7.10	36.53	44.	60	60.75	74.0	0	-13.25	Pk	Horizonta
7440.28	43.80	7.10	36.53	44.	60	42.83	54.0	0	-11.17	AV	Horizonta

Note:

(1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor (2)All other emissions more than 20dB below the limit.



Spurious Emission	n in Restricted Band 231	0-2390MHz and 2483.	5-2500MHz
EUT:	Cube Tracker	Model No.:	CUBE SHADOW
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/ Mode4	Test By:	Mary Hu

Frequenc y	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
				GF	SK			-	
2310.00	61.23	2.97	27.80	43.80	48.20	74	-25.80	Pk	Horizontal
2310.00	42.79	2.97	27.80	43.80	29.76	54	-24.24	AV	Horizontal
2310.00	58.87	2.97	27.80	43.80	45.84	74	-28.16	Pk	Vertical
2310.00	39.29	2.97	27.80	43.80	26.26	54	-27.74	AV	Vertical
2390.00	60.00	3.14	27.21	43.80	46.55	74	-27.45	Pk	Vertical
2390.00	48.29	3.14	27.21	43.80	34.84	54	-19.16	AV	Vertical
2390.00	59.27	3.14	27.21	43.80	45.82	74	-28.18	Pk	Horizontal
2390.00	43.20	3.14	27.21	43.80	29.75	54	-24.25	AV	Horizontal
2483.50	60.87	3.58	27.70	44.00	48.15	74	-25.85	Pk	Vertical
2483.50	42.29	3.58	27.70	44.00	29.57	54	-24.43	AV	Vertical
2483.50	62.00	3.58	27.70	44.00	49.28	74	-24.72	Pk	Horizontal
2483.50	42.90	3.58	27.70	44.00	30.18	54	-23.82	AV	Horizontal

Note: (1) All other emissions more than 20dB below the limit.



UT:	Cu	be Tracke	er	Model N	No.:	C	CUBE S	HAD	NOC	
Femperature:	20	°C		Relative	e Humidity:	4	8%			
Fest Mode:	Мо	de2/ Mod	e4	Test By	:	Ν	/lary Hu			
_				_					_	
Frequenc y	Readin g Level	Cable Loss	Antenn a	Preamp Factor	Emission Level	Limi	its Mar	gin	Detecto r	
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµ V/m)	(dB V/m	· / / / /	3)	Туре	Comment
3260	62.88	4.04	29.57	44.70	51.79	74	-22	21	Pk	Vertical
3260	44.90	4.04	29.57	44.70	33.81	54	-20	19	AV	Vertical
3260	63.00	4.04	29.57	44.70	51.91	74	-22	09	Pk	Horizontal
3260	48.51	4.04	29.57	44.70	37.42	54	-16	58	AV	Horizontal
3332	61.96	4.26	29.87	44.40	51.69	74	-22	31	Pk	Vertical
3332	49.76	4.26	29.87	44.40	39.49	54	-14	51	AV	Vertical
3332	64.79	4.26	29.87	44.40	54.52	74	-19	48	Pk	Horizontal
3332	47.22	4.26	29.87	44.40	36.95	54	-17	05	AV	Horizontal
17797	44.16	10.99	43.95	43.50	55.60	74	-18	40	Pk	Vertical
17797	30.00	10.99	43.95	43.50	41.44	54	-12	56	AV	Vertical
17788	46.89	11.81	43.69	44.60	57.79	74	-16	21	Pk	Horizontal
17788	30.85	11.81	43.69	44.60	41.75	54	-12	25	AV	Horizontal

Note: (1) All other emissions more than 20dB below the limit.



7.3 6DB BANDWIDTH

7.3.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 D01 15.247 Meas Guidance v05 Section 8.2.

7.3.2 Conformance Limit

The minimum permissible 6dB bandwidth is 500 kHz.

7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

7.3.5 Test Procedure

The testing follows Subclause 11.8 of ANSI C63.10

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Use the following spectrum analyzer settings:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) \geq 3*RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3.6 Test Results

EUT:	Cube Tracker	Model No.:	CUBE SHADOW
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Mary Hu

Channel	Frequency (MHz)	6dB bandwidth (kHz)	Limit (kHz)	Result
Low	2402	710.6	≥500	Pass
Middle	2440	730.1	≥500	Pass
High	2480	716.4	≥500	Pass



odB Bandwidth plot on o	channel 00			1Mbp:	S
Agilent Spectrum Analyzer - Occupied BW VV RL RF 500 AC C Center Freq 2.402000000 (#1			ALIGNAUTO D4:02:27 Radio Std Id>10/10 Radio De	l: None	Trace/Detector
10 dB/div Ref 10.00 dBm Log 0.00 -10.0 -20.0					Clear Write
-30 0 -40 0					Average
-60.0					Max Hold
Center 2.402 GHz #Res BW 100 kHz	#VI	BW 300 kHz	Sw	oan 3 MHz eep 1 ms	Min Hold
Occupied Bandwidth 1.0 Transmit Freq Error	932 MHz -48.025 kHz	Total Power OBW Power	2.67 dBm 99.00 %	A	Detector Peak► Auto <u>Man</u>
x dB Bandwidth	710.6 kHz	x dB	-6.00 dB		
MSG			STATUS		
6dB Bandwidth plot on 6	channel 19		STATUS	1Mbp:	S
Agilent Spectrum Analyzer - Occupied BW VV RL RF SOQ AC C Center Freq 2.4400000000 C #10 dB/div Ref 10.00 dBm Log	ORREC SI	Freq: 2.440000000 GHz e Run Avg Ho	ALIGNAUTO (04:01:59)	AMNov 10, 2018 I: None	S Trace/Detector Clear Write Average
Agilent Spectrum Analyzer - Occupied BW (V) RL RF SOQ AC C Center Freq 2.4400000000 (#1 10 dB/div Ref 10.00 dBm Log	ORREC SI GHz Center F Trig: Fre	Freq: 2.440000000 GHz e Run Avg Ho	ALIGNAUTO [04:01:59 Radio Std Id:>10/10	AMNov 10, 2018 I: None	Trace/Detector Clear Write
Agilent Spectrum Analyzer - Occupied BW VX RL RF S0.2 AC C Center Freq 2.4400000000 W #I 10 dB/div Ref 10.00 dBm	GRREC SI GHZ Center F FGain:Low #Atten: S	Freq: 2.440000000 GHz e Run Avg Ho	ALIGNAUTO D4:01:59, Radio Sto Radio Dev	AMNov 10, 2018 I: None	Trace/Detector Clear Write Average
Aglient Spectrum Analyzer - Occupied BW (V) RL RF SOQ AC C Center Freq 2.440000000 (10 dB/div Ref 10.00 dBm 10 dB/di	GRREC S GHZ FGain:Low #Atten: S	reg: 2.44000000 GHz se Run Avg Ho i0 dB	ALIGNAUTO D4:01:59, Radio Sto Radio Dev	AMNov 10, 2018 I: None vice: BTS	Trace/Detector Clear Write Average Max Hold
Agilent Spectrum Analyzer - Occupied BW VI RL RF 50.2 AC C Center Freq 2.440000000 #I 10 dB/div Ref 10.00 dBm 0.00	CRREC S GHZ Center F FGain:Low #Atten: S #Atten: S #VI 045 MHZ	BW 300 kHz Total Power	ALIGNAUTO D4:01:59. Radio Std Radio Dev Alid>10/10 Sp Sp Sw 2.75 dBm	AMNov 10, 2018 I: None vice: BTS	Trace/Detector
Aglient Spectrum Analyzer - Occupied BW (V) RL RF SOQ AC C Center Freq 2.440000000 (10 dB/div Ref 10.00 dBm 10 dB/di	GRREC S GHZ FGain:Low #Atten: S	BW 300 kHz	ALIGNAUTO D4:01:59. Radio Std Radio De ALIGNAUTO Radio De Radio De Radio De Radio De Radio Std Radio De	AMNov 10, 2018 I: None vice: BTS	Trace/Detector



Aglent Spectrum Analyzer - Occupied BW Connect Freq: 2.4300000 GH2 ALIONAUTO DH:01:23 AMNOV 10, 2010 Trace/Detector X dB - 6.00 dB Center Freq: 2.43000000 GH2 Radio Std: None	MRL RF SD & AC CORREC SPRENT A AURIANTO Dedit22 AMMov 10, 2019 Trace/Detector x dB -6.00 dB #FGain:Low Trig: Free Run Avg Hold>- 10/10 Radio Std: None 10 dB/div Ref 10.00 dBm	W RL RF 50.2 AC CORREC SENERNIT AUGUAUTO Pr01224 ANNOV 10,2018 Radio Std: None X dB 6.00 dB #FGaintLow Center Freq: 2.4800000 GHz Radio Std: None Radio Std: None 10 dB/div Ref 10.00 dBm	6dB Bandwidth plot on channel 39		1Mbp	OS
Log Clear Write 100 4	Log Image: Clear Write 100 Image: Clear Write 200 Image: Clear Write <td< th=""><th>Log Clear Write 200 Clear Write 200 Average 300 Average 400 Average Max Hold Max Hold Win Hold Span 3 MHz Win Hold Sweep 1 ms Occupied Bandwidth Total Power 2.44 dBm 1.1244 MHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB</th><th>XX RL RF 50 Ω AC CORREC X dB -6.00 dB</th><th>ter Freq: 2.480000000 GHz : Free Run Avg Hold:>10/10</th><th>Radio Std: None</th><th>Trace/Detector</th></td<>	Log Clear Write 200 Clear Write 200 Average 300 Average 400 Average Max Hold Max Hold Win Hold Span 3 MHz Win Hold Sweep 1 ms Occupied Bandwidth Total Power 2.44 dBm 1.1244 MHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB	XX RL RF 50 Ω AC CORREC X dB -6.00 dB	ter Freq: 2.480000000 GHz : Free Run Avg Hold:>10/10	Radio Std: None	Trace/Detector
300 4	Average Average Max Hold Max Hold	300 4	Log 0.00	~~~		Clear Write
600 200 Image: Second se	Image: Second state of the second s	60.0 Image: Constraint of the second sec	.30.0			Average
Center 2.48 GH2 Span 3 WH2 #Res BW 100 kHz #VBW 300 kHz Occupied Bandwidth Total Power 1.1244 MHz Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB	Center 2.48 GH2 Span 3 WH2 #Res BW 100 kHz #VBW 300 kHz Occupied Bandwidth Total Power 1.1244 MHz Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB	Center 2.48 GH2 Span 3 MH2 #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms Occupied Bandwidth Total Power 2.44 dBm 1.1244 MHz Detector Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB	.60.0			Max Hold
1.1244 MHz Auto Peak► Man Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB	1.1244 MHz Auto Peak► Man Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB	1.1244 MHz Auto Peak ► Man Transmit Freq Error -61.470 kHz OBW Power 99.00 % x dB Bandwidth 716.4 kHz x dB -6.00 dB	Center 2.48 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 3 MHz Sweep 1 ms	Min Hold
x dB Bandwidth 716.4 kHz x dB -6.00 dB	x dB Bandwidth 716.4 kHz x dB -6.00 dB	x dB Bandwidth 716.4 kHz x dB -6.00 dB	1.1244 MHz	Total Power		Peak▶
MSG STATUS	MSG					
			MSG	S	TATUS	



7.4 PEAK OUTPUT POWER

7.4.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 D01 15.247 Meas Guidance v05 Section 8.3.1.

7.4.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm). If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

7.4.5 Test Procedure

The testing follows Subclause 11.9.1.1 of ANSI C63.10

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Use the following spectrum analyzer settings:

Set the RBW \geq DTS bandwidth.

Set VBW =3*RBW.

Set the span \geq 3*RBW

Set Sweep time = auto couple.

Set Detector = peak.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use peak marker function to determine the peak amplitude level.

7.4.6 Test Results

EUT:	Cube Tracker	Model No.:	CUBE SHADOW
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Mary Hu

Test Channel	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	LIMIT (dBm)	Verdict
			1Mbps		
00	2402	Default	-4.02	30	PASS
19	2440	Default	-3.95	30	PASS
39	2480	Default	-4.24	30	PASS



eak output Power	plot on cha	nnel 00		1Mbp)S
Agilent Spectrum Analyzer - Sw XX RL RF 50 G Marker 1 2.4016750		Trig: Free Run	ALIGNAUTO Avg Type: Log-Pwr	D3:56:30 AMNov 10, 2018 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Peak Search
10 dB/div Ref 20.00	dBm		Mkr1	2.401 675 GHz -4.02 dBm	Next Peak
Log					Next Pk Right
0.00		.1			Junio
-10.0	And the second				Next Pk Left
-20.0				and a manager	
-30.0					Marker Delta
-40.0					Mkr→CF
-50.0					
-60.0					Mkr→RefLvl
-70.0					More
Center 2.402000 GHz #Res BW 1.5 MHz		/BW 5.0 MHz	Sweep	Span 5.000 MHz 1.00 ms (1001 pts)	1 of 2
· · · · · ·					
MSG			STATUS		
	plot on cha	nnel 19	STATUS	ļ	DS
eak output Power	·	nnel 19	STATUS	1Mbp)S
eak output Power	vept SA 2 AC CORREC	SENSE:INT	ALIGN AUTO	1Mbp 03:57:10 AMNov 10, 2018	DS Peak Search
eak output Power	vept SA 2 AC CORREC	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	D3:57:10 AMNov 10, 2018 TRACE 12:34 5 G TYPE 2:34 5 G TYPE PNNNNN	
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	03:57:10 AMNov 10, 2018 TRACE 12:34 5 6 TRACE 12:34 5 6	Peak Search
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right
eak output Power	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right Next Pk Left
Agilent Spectrum Analyzer - Sw Agilent Spectrum Analyzer - Sw Marker 1 2.4396800 10 dB/div Ref 20.00 10.0 10.0 -10.0 -20.0 -30.0 -40.0	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right Next Pk Left
eak output Power Agilent Spectrum Analyzer - SW W RL Marker 1 2.4396800 10 dB/div Ref 20.00 00	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right Next Pk Left Marker Detta Mkr→CF
Agilent Spectrum Analyzer - Sw Agilent Spectrum Analyzer - Sw Marker 1 2.4396800 10 dB/div Ref 20.00 10.0 10.0 -10.0 -20.0 -30.0 -40.0	vept SA 2 AC CORREC 0000000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp 03:57:10 AMNov 10, 2018 TRACE 12 23 4 5 6 TYPE 12 3 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta
eak output Power Agilent Spectrum Analyzer - SW WRL RF 10 dB/div Ref 20.00 10 dB/div Ref 20.00 000	rept SA AC CORREC O00000 GHz PNO: Fast IFGain:Lov	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	1Mbp D3:57:10 AMNov 10, 2018 TRACE 1 2 3 4 5 6 TYPE NINNIN 2.439 680 GHz -3.95 dBm	Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→CF
eak output Power Agilent Spectrum Analyzer - SW VX RL VX RE 10 B/div 10 B/div 10 B/div 10.0 B/div <td< td=""><td>rept SA AC CORREC O00000 GHZ PN0: Fast IFGain:Lov dBm</td><td>SENSE:INT</td><td>ALIGNAUTO Avg Type: Log-Pwr Mkr1</td><td>1 Mbp D3:57:10 AMNov 10, 2019 TRACE 1 2 3 4 5 6 TYPE P NNNN 2.439 680 GHz -3.95 dBm</td><td>Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl</td></td<>	rept SA AC CORREC O00000 GHZ PN0: Fast IFGain:Lov dBm	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr Mkr1	1 Mbp D3:57:10 AMNov 10, 2019 TRACE 1 2 3 4 5 6 TYPE P NNNN 2.439 680 GHz -3.95 dBm	Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr→CF Mkr→Ref Lvl



V RL 0F 50.2 Ac CORPEC SENSEINT AUGNANTO D35951 AMINOV 10.2018 Marker 1 2.479735000000 GHz Frig: Free Run Avg Type: Log-Pwr Trace in the sense run of	Marker 1 2.479735000000 GHz Avg Type: Log-Pwr Trace Details of the second s	ak output Power plot	on channel 39		1Mbps
Mkr1 2.479 735 GHz Next Peak 10 dB/div Ref 20.00 dBm -4.24 dBm 10 dB/div A.24 dBm Next Pk Right 10 d 1 1 1 10 d 1 1 1 1 10 d 1 1 1 1 1 10 d 1 1 1 1 1 1 10 d 1	Mkr1 2.479 735 GHz Next Peak 10 4.24 dBm Next Pk Right 10 1 1 1 1 10 1 1 1 1 1 100 1 1 1 1 1 1 100 1	X/RL RF 50Ω AC) GHz	ALIGNAUTO D3:58:51 AM Avg Type: Log-Pwr TRACE TYPE	Nov 10, 2018 1284 5 6 Peak Search
0.00 1 1 1 1 Next Pk Right 0.00 1 1 1 1 Next Pk Right 100 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left More 1 1 1 1 1 Next Pk Left More 1 1 1 1 1 1 1 1 No 1 1 1 1 1 1 1 1 1 1 1 <td>0.00 1 1 1 1 Next Pk Right 0.00 1 1 1 1 Next Pk Right 100 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left More 1 1 1 1 1 Next Pk Left More 1 1 1 1 1 1 1 1 No 1 1 1 1 1 1 1 1 1 1 1<td>0 dB(div Ref 20.00 dBm</td><td>IFGain:Low Atten: 30 dB</td><td>Mkr1 2.479 73</td><td>5 GHz Next Peak</td></td>	0.00 1 1 1 1 Next Pk Right 0.00 1 1 1 1 Next Pk Right 100 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left Marker Detta 1 1 1 1 Next Pk Left More 1 1 1 1 1 Next Pk Left More 1 1 1 1 1 1 1 1 No 1 1 1 1 1 1 1 1 1 1 1 <td>0 dB(div Ref 20.00 dBm</td> <td>IFGain:Low Atten: 30 dB</td> <td>Mkr1 2.479 73</td> <td>5 GHz Next Peak</td>	0 dB(div Ref 20.00 dBm	IFGain:Low Atten: 30 dB	Mkr1 2.479 73	5 GHz Next Peak
100 Image: Constraint of the second seco	100 Image: Constraint of the second seco	_og			
100 1	100 1	- marken	1		Next Pk Left
300	300	and the second and the second s			Manufiguerra
500 Mkr→CF 600 Mkr→RefLvl 700 Center 2.480000 GHz #Res BW 1.5 MHz #VBW 5.0 MHz Sweep 1.00 ms (1001 pts)	500 Mkr→CF 600 Mkr→RefLvl 700 Center 2.480000 GHz #Res BW 1.5 MHz #VBW 5.0 MHz Sweep 1.00 ms (1001 pts)				Marker Delta
-700 Center 2.480000 GHz #VBW 5.0 MHz Sweep 1.00 ms (1001 pts)	-700 Center 2.480000 GHz #VBW 5.0 MHz Sweep 1.00 ms (1001 pts)				Mkr→CF
Center 2.480000 GHz Span 5.000 MHz Sweep 1.00 ms (1001 pts)	Center 2.480000 GHz Span 5.000 MHz Sweep 1.00 ms (1001 pts)	-60.0			Mkr→RefLvl
		#Res BW 1.5 MHz	#VBW 5.0 MHz		000 MHZ 1 of 2 001 pts)



7.5 POWER SPECTRAL DENSITY

7.5.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05 Section 8.4.

7.5.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

7.5.5 Test Procedure

The testing follows Measurement Procedure Subclause 11.10.2 of ANSI C63.10 This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5*DTS bandwidth.
- c) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW \geq 3 RBW.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



7.5.6 Test Results

UT:	Cube Tracke	ər	Model No.:		CUBE SHADO	W
Temperature:	20 ℃		Relative Hur	nidity:	48%	
Test Mode:	Mode2/Mod	e3/Mode4	Test By:		Mary Hu	
Test Channel	Frequency	Power	^r Density		Limit	Verdict
Test Channel	(MHz)	(dBm	n/3KHz)	(d	Bm/3KHz)	Verdict
	2402		1Mbps		0	DACC
<u> </u>	2402 2440		8.41 8.78		8	PASS PASS
39	2480		8.98		8	PASS
			0.00			
Power spe	ectral density plot o	n channel 0	0		1Mbps	
A-th-AC	pectrum Analyzer - Swept SA					
LXI RL	RF 50 Ω AC CORF		SENSE:INT	ALIGN AUTO	04:23:05 AMNov 10, 2018	Peak Search
Marke	r 1 2.401961500000 GH	0: Far 😱 Trig: F	ree Run	'ype: Log-Pwr	TRACE 123456 TYPE MWWWWWW DET P N N N N N	
	IF68	ain:Low Atten:		Mkr1 2	401 961 5 GHz	Next Peak
10 dB/d Log	iv Ref 10.00 dBm				-18.41 dBm	
						Next Pk Right
0.00						Next 1 K Right
-10.0			4			
-20.0						Next Pk Left
	Nuch Marin Manuer M		MMMAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	MAAA		
-30.0 M	MW WW I I		AA A MALLA	- A to Martin	Mar Mar An a	Marker Delta
-40.0					A CALINA MART	marker bena
-50.0						
-30.0						Mkr→CF
-60.0						
-70.0						Mkr→RefLvi
						WIRI - Rei EVI
-80.0						
Center	2.4020000 GHz				Span 1.100 MHz	More 1 of 2
	3W 3.0 kHz	#VBW 10 kH	z	Sweep	116 ms (1001 pts)	
MSG				STATUS		



wer spectral density plot on channel 19	1Mbps
Agilent Spectrum Analyzer - Swept SA	
Marker 1 2.439960400000 GRz SENSE:INT	ALIGN AUTO D4:22:25 AM Nov 10, 2018 Peak Search Avg Type: Log-Pwr TRACE 23:45:5 Peak Search
PNO: Far 🕞 Trig: Free Run IFGain:Low Atten: 20 dB	DET PNNNN
10 dB/div Ref 10.00 dBm	Mkr1 2.439 960 4 GHz -18.78 dBm
0.00	Next Pk Right
-10.0	
-20.0	Next Pk Left
-20.0 -30.0 -40.0	MWAAAAAAAA
	Marker Delta
-40.0	
-50.0	
-60.0	Mkr→CF
-70.0	Mkr→RefLvl
-80.0	
Center 2.4400000 GHz	More Span 1.100 MHz 1 of 2
#Res BW 3.0 kHz #VBW 10 kHz	Sweep 116 ms (1001 pts)
MSG	STATUS
MSG	
wer spectral density plot on channel 39	
wer spectral density plot on channel 39	STATUS
Wer spectral density plot on channel 39 Agilent Spectrum Analyzer - Swept SA Od RL RF SO Q AC CORREC SENSE:INT	STATUS 1Mbps
Wer spectral density plot on channel 39 Agilent Spectrum Analyzer - Swept SA Val RF 50 Q AC CORREC SENSE:INT Marker 1 2.4799593000000 GHz Trig: Free Run PNO: Far Trig: Free Run	status 1Mbps
Agilent Spectrum Analyzer - Swept SA Od RL RF 50.9 AC CORREC SENSE:INI Marker 1 2.479959300000 GHz PNO: Far Trig: Free Run IFGain:Low Atten: 20 dB	ALIGNAUTO D4:21:52 AMNov 10, 2018 Avg Type: Log-Pwr TRACE 12 3 4 5 0 Tree NNNNN Mkr1 2.479 959 3 GHz Next Peak
Wer spectral density plot on channel 39 Agilent Spectrum Analyzer - Swept SA Val RF 50 Q AC CORREC SENSE:INT Marker 1 2.4799593000000 GHz Trig: Free Run PNO: Far Trig: Free Run	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 12 3 4 5 5 Type MNNNN Der PNNNNN
Agilent Spectrum Analyzer - Swept SA Od RL RF 50.9 AC CORREC SENSE:INI Marker 1 2.479959300000 GHz PNO: Far Trig: Free Run IFGain:Low Atten: 20 dB	ALIGNAUTO D4:21:52 AMNov 10, 2018 Avg Type: Log-Pwr TRACE 12 3 4 5 0 Tree NNNNN Mkr1 2.479 959 3 GHz Next Peak
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.4799593000000 GHz PN0: Far PN0: Far In dB/div Ref 10.00 dBm 0.00 Ref 10.00 dBm	T ALIGNAUTO D4:21:52 AMNov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 0 TYPE / NNNNN Mkr1 2.479 959 3 GHz -18.91 dBm
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.479959300000 GHz Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IC dB/div Ref 10.00 dBm 000 100	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.479959300000 GHz Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IC dB/div Ref 10.00 dBm 000 100	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.479959300000 GHz Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IC dB/div Ref 10.00 dBm 000 100	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.479959300000 GHz Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IC dB/div Ref 10.00 dBm 000 100	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39 Aglient Spectrum Analyzer - Swept SA Warker 1 2.479959300000 GHz Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IC dB/div Ref 10.00 dBm 000 100	T ALIGNAUTO D4:21:52 AM Nov 10, 2018 Avg Type: Log-Pwr TRACE 2 3 4 5 6 TYPE DET PNNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Pk Right
Wer spectral density plot on channel 39	STATUS IMbps Image: Status Peak Search NYNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Peak Next Pk Right Next Pk Left MMMM Marker Detta
Agilent Spectrum Analyzer - Swept SA Od RL RF 50 Q AC CORREC SENSE:INI Marker 1 2.479959300000 GHz PNO: Far PNO: Far PNO: Far PNO: Far 10 dB/div Ref 10.00 dBm 10 dB/div Ref 10.00 dBm 10 dB/div Action 10 dBm 10 dB/div Ref 10.00 dBm 10 dB/div Ref 10.00 dBm 10 dB/div Ref 10.00 dBm	STATUS IMbps Image: Status Peak Search NYNNNN Mkr1 2.479 959 3 GHz -18.91 dBm Next Peak Next Pk Right Next Pk Left MMMM Marker Detta
Agilent Spectrum Analyzer - Swept SA Vit RL RF 50.0 AC CORREC SENSE:INT Marker 1 2.479959300000 GHz Trig: Free Run IO dB/div Ref 10.00 dBm 000 000 000 000 000 10 dB/div Ref 10.00 dBm 000 200 000 000 000 10.00 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 000 200 000 000 000 00	STATUS IMbps IMbps Peak Search Next Peak Next Peak Next Pk Right Next Pk Right Marker Detta Marker Detta
Agilent Spectrum Analyzer - Swept SA OC RL RF 50 Q AC CORREC SENSE:INI Marker 1 2.479959300000 GHz PN0: Far Trig: Free Run IE Gain:Low Trig: Free Run Atten: 20 dB 10 dB/div Ref 10.00 dBm 10 dB/div Ref 10.00 dBm 10 dB/div Action 10 dBm 10	STATUS IMbps Imace is a state in the st
Agilent Spectrum Analyzer - Swept SA Vit RL RF 50.0 AC CORREC SENSE:INT Marker 1 2.479959300000 GHz Trig: Free Run IO dB/div Ref 10.00 dBm 000 000 000 000 000 10 dB/div Ref 10.00 dBm 000 200 000 000 000 10.00 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 200 000 000 000 000 200 000 000 000 00	STATUS IMbps IMbps Peak Search Next Peak Next Peak Next Pk Right Next Pk Right Marker Detta Marker Detta



7.6 CONDUCTED BAND EDGE MEASUREMENT

7.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05 Section 8.7.

7.6.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

7.6.5 Test Procedure

The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04 Section 8.7. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.

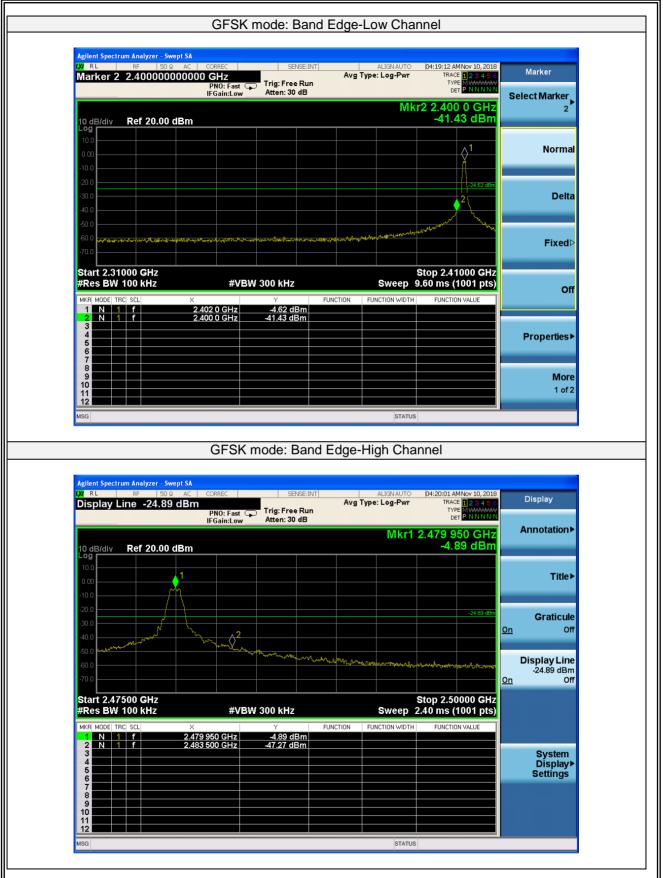
Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.

7.6.6 Test Results

EUT:	Cube Tracker	Model No.:	CUBE SHADOW
Temperature:	20 ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode4	Test By:	Mary Hu







7.7 SPURIOUS RF CONDUCTED EMISSIONS

7.7.1 Conformance Limit

1. Below -20dB of the highest emission level in operating band.

2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

7.7.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

7.7.3 Test Setup

Please refer to Section 6.1 of this test report.

7.7.4 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBW= 300KHz to measure the peak field strength , and measure frequeny range from 9KHz to 26.5GHz.

7.7.5 Test Results

Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.



Test Plot





GFSK on channel 00

Marker 1 789.510000000 MHz Trig: Free Run US: Solid ave Trig: Free Run Atten: 30 dB Peak Search Aug Type: Log-Pw TYPE Next Pe 789.51 M -58.47 dE Ref 20.00 dBm Next Pk Righ Next Pk Lei Marker Del Mkr→CF ٠ Mkr→RefLv More 1 of 2 Start 30.0 MHz #Res BW 100 kHz Stop 1.0000 G Sweep 92.7 ms (1001 p #VBW 300 kHz

GFSK on channel 00



GFSK on channel 00



Test Plot





GFSK on channel 19

Peak Search RL RF 50 P AC CORR Marker 1 31.940000000 MHz ALIGNAUT D: Fast Trig: Free Run Next Pe 1 31.94 M -58.86 dE Ref 20.00 dBm Next Pk Righ Next Pk Lei Marker Del Mkr→CF Mkr→RefLv More 1 of 2 Start 30.0 MHz #Res BW 100 kHz Stop 1.0000 G Sweep 92.7 ms (1001 p #VBW 300 kHz

Peak Search Marker 1 26.0410000 CORREC 00000 GHz PNO: Fast C Atten: 30 dB Avg Type: Log-Pv Next Pea 26.041 C -47.58 d Ref 20.00 dBm Next Pk Righ Next Pk Le Marker Delt Mkr→Cf Mkr→RefLv More 1 of 2

#VBW 300 kHz

Stop 26.50 GH Sweep 2.44 s (1001 pts

Start 1.00 GHz #Res BW 100 kHz

GFSK on channel 19



Test Plot





GFSK on channel 39

 Opening
 PAR
 PF
 SD @
 AC
 CORREC
 Designment

 Marker 1
 789.510000000 MHz
 Trig: Free Run
 Trig: Free Run
 Trig: Free Run
 Peak Search Aug Type: Log-Pw Next Pe 789.51 M -58.37 dE Ref 20.00 dBm Next Pk Righ Next Pk Lei Marker Del Mkr→CF ٠ Mkr→RefLv More 1 of 2 Start 30.0 MHz #Res BW 100 kHz Stop 1.0000 G Sweep 92.7 ms (1001 p #VBW 300 kHz

GFSK on channel 39





7.8 ANTENNA APPLICATION

7.8.1 Antenna Requirement

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.8.2 Result

The EUT antenna is permanent attached Panel antenna(Gain:0 dBi). It comply with the standard requirement.

END OF REPORT