



TEST REPORT

Product Name: Outdoor Intelligent Helmet
Trademark: **ZONZOU**
Model Number: S66A
Prepared For: Shenzhen You yun an Intelligent Technology Co.,LTD
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COMMUNITY,PINGHU STREET,LONGGAN
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Address:
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Sample Received Date: Aug.25, 2020
Sample tested Date: Aug. 25, 2020 to Aug. 27, 2020
Issue Date: Aug. 27, 2020
Report No.: BCTC2008002600E
Test Standards 47 CFR FCC Part 15 Subpart B
Test Results PASS

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Reviewed by:

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Approved by:

Zero Zhou/Manager

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(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2008002600E	Aug.27, 2020	Original	Valid



2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard	Test Item	Test result
FCC 15.107	Conducted Emission	Pass
FCC 15.109	Radiated Emission	Pass



3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80



4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Ratings:

DC 3.7V

Charging port: 5V

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Specification	Note
1	--	--	Applicant	---	Shielded	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Unshielded	--

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	ADAPTER	UGREEN	CN122	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted emissions from the AC mains power ports (150KHz-30MHz) Class B	Charging	AC120V/60Hz
Radiated emissions(30MHz-1GHz)Class B	Working	DC 3.7V
	Charging	AC120V/60Hz*
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions shows (*) is the worst case mode which were recorded in this report.		



5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

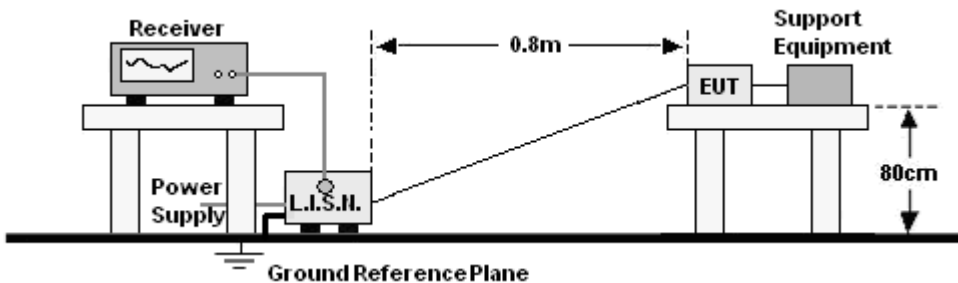
Conducted emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
ISN	HPX	ISN T800	S1509001	Jun. 04, 2020	Jun. 03, 2021
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 06, 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
Receiver	R&S	ESRP	101154	Jun. 08, 2020	Jun. 07, 2021
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-9 42	Jun. 08, 2020	Jun. 07, 2021
Horn Antenna	SCHWARZBEC K	BBHA9120D	1541	Jun. 10, 2020	Jun. 09, 2021
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

Limits for Class B devices

(MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

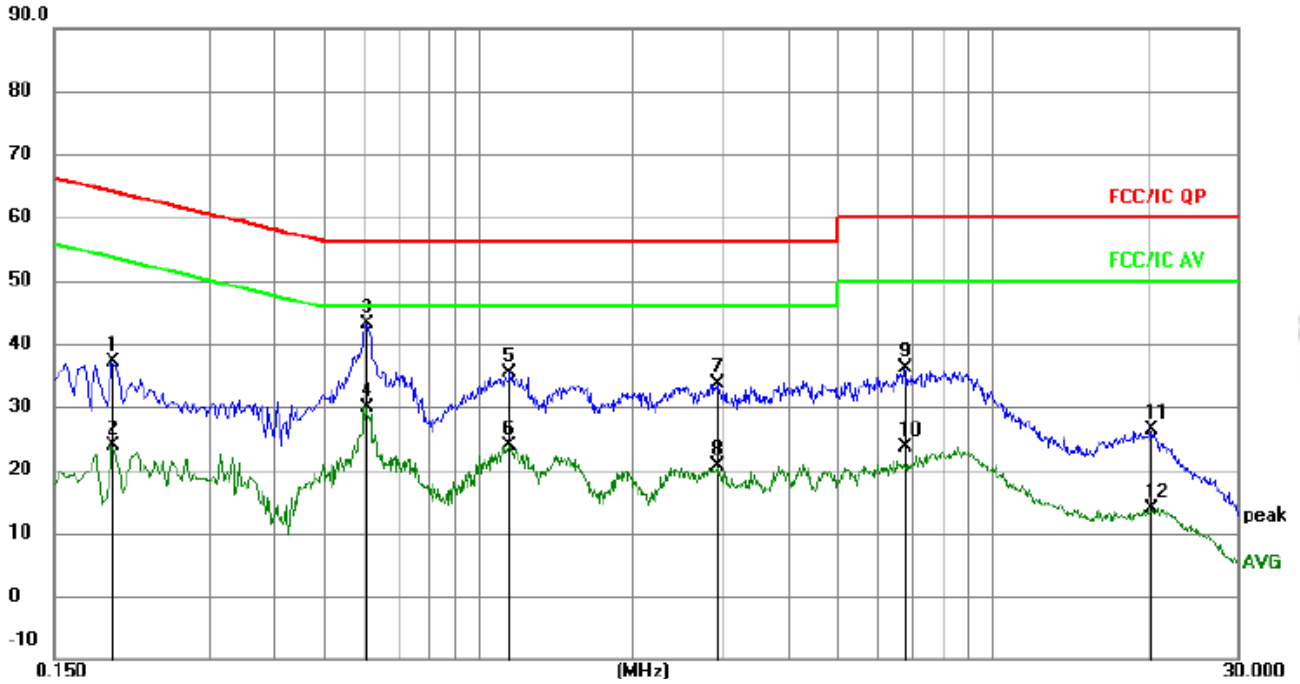
For mains ports:

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.



6.4 Test Result

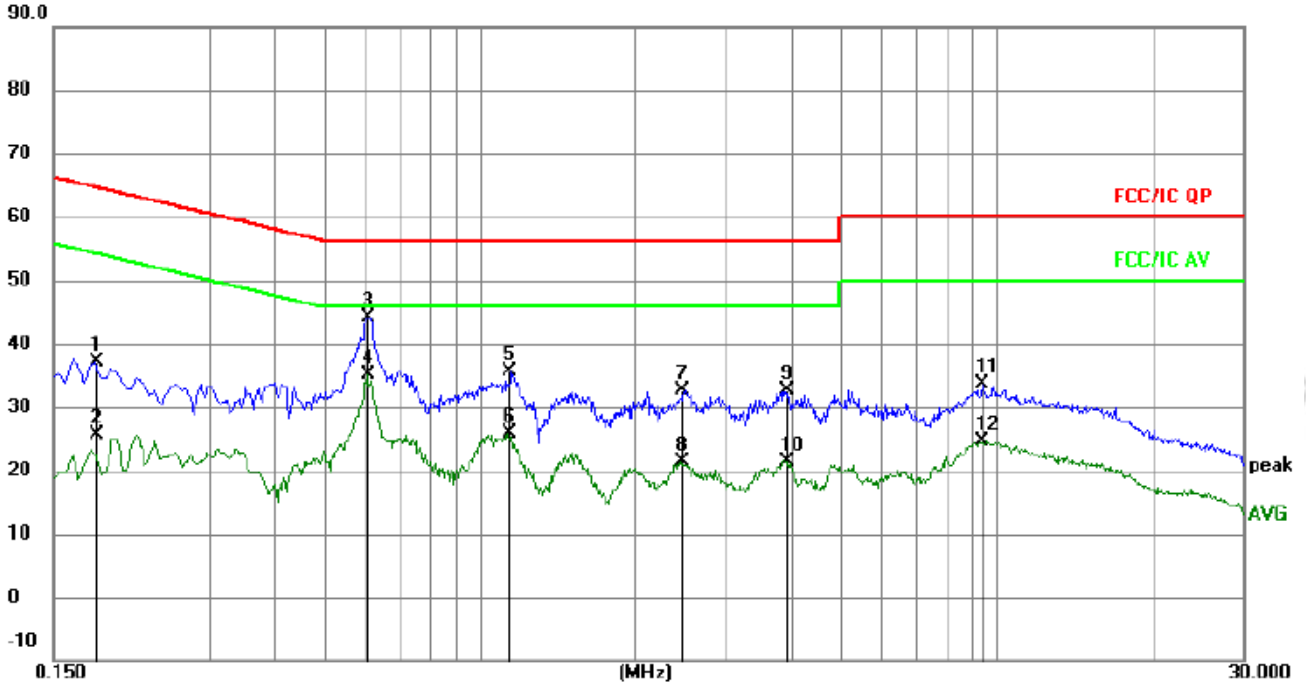
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC120V/60Hz	Test Mode:	Charging



No.	Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
				dB	dBuV	dBuV	dB		
1		0.1949	27.56	9.47	37.03	63.83	-26.80	QP	
2		0.1949	14.35	9.47	23.82	53.83	-30.01	AVG	
3	*	0.6089	33.27	9.97	43.24	56.00	-12.76	QP	
4		0.6089	20.02	9.97	29.99	46.00	-16.01	AVG	
5		1.1489	25.75	9.57	35.32	56.00	-20.68	QP	
6		1.1489	14.23	9.57	23.80	46.00	-22.20	AVG	
7		2.9175	24.07	9.65	33.72	56.00	-22.28	QP	
8		2.9175	10.87	9.65	20.52	46.00	-25.48	AVG	
9		6.7605	26.30	9.73	36.03	60.00	-23.97	QP	
10		6.7605	13.78	9.73	23.51	50.00	-26.49	AVG	
11		20.3685	16.47	9.79	26.26	60.00	-33.74	QP	
12		20.3685	4.06	9.79	13.85	50.00	-36.15	AVG	



Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC120V/60Hz	Test Mode:	Charging



No.	Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
				dB	dBuV	dBuV	dB		
1		0.1815	27.54	9.48	37.02	64.42	-27.40	QP	
2		0.1815	16.22	9.48	25.70	54.42	-28.72	AVG	
3		0.6044	34.27	9.98	44.25	56.00	-11.75	QP	
4	*	0.6044	25.09	9.98	35.07	46.00	-10.93	AVG	
5		1.1354	25.95	9.57	35.52	56.00	-20.48	QP	
6		1.1354	16.30	9.57	25.87	46.00	-20.13	AVG	
7		2.4585	22.95	9.62	32.57	56.00	-23.43	QP	
8		2.4585	11.66	9.62	21.28	46.00	-24.72	AVG	
9		3.9390	22.97	9.73	32.70	56.00	-23.30	QP	
10		3.9390	11.53	9.73	21.26	46.00	-24.74	AVG	
11		9.3975	23.93	9.70	33.63	60.00	-26.37	QP	
12		9.3975	14.86	9.70	24.56	50.00	-25.44	AVG	

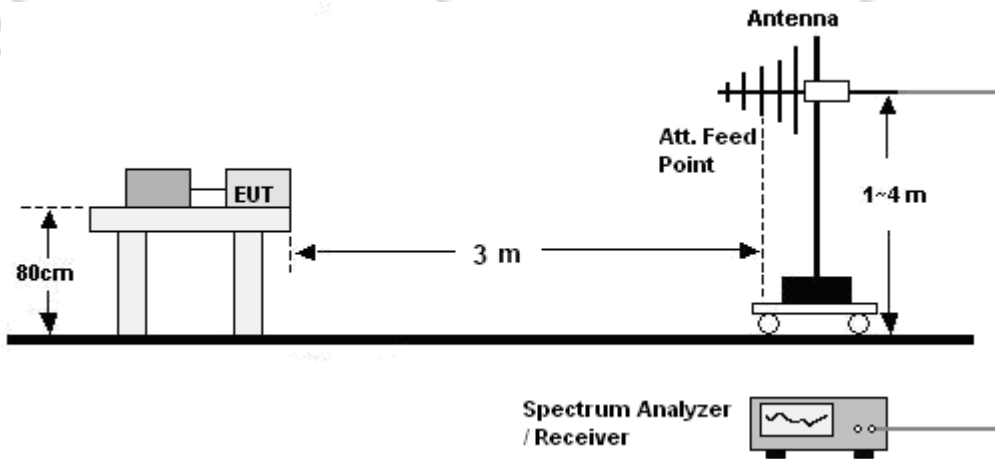
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

7. RADIATION EMISSION TEST

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



7.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μ V/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

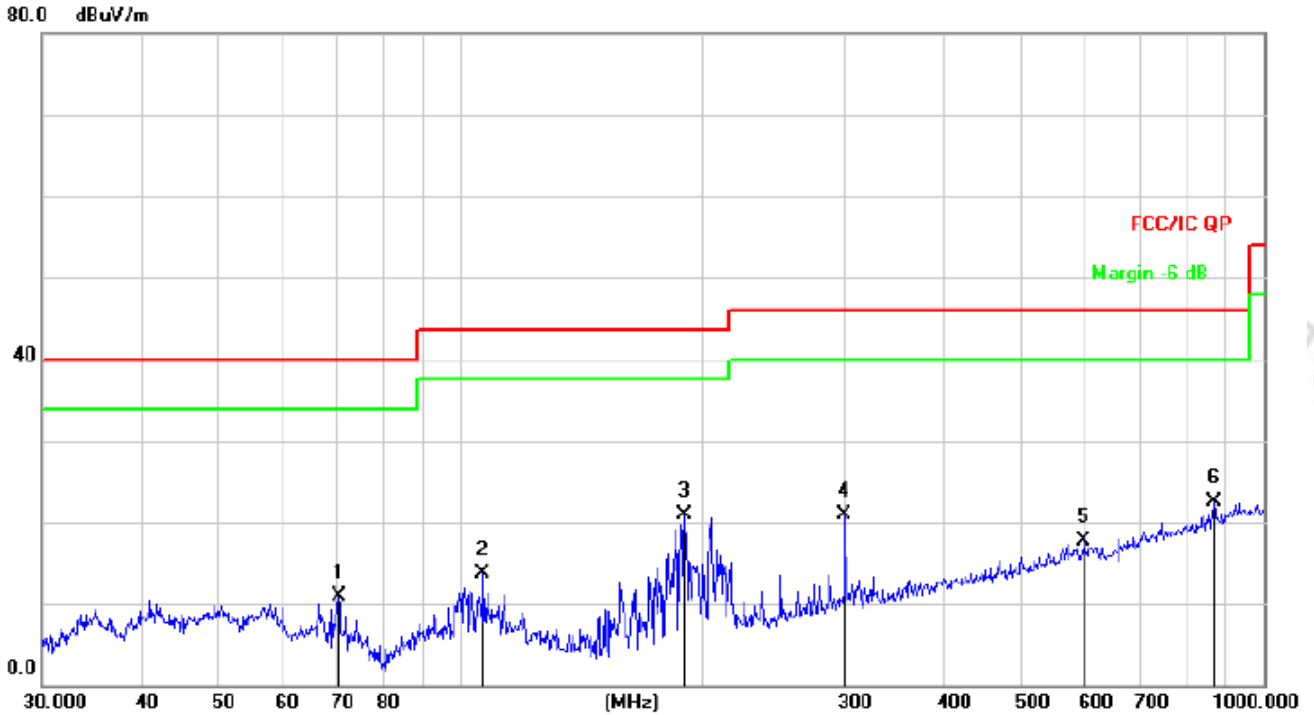
30MHz ~ 1GHz:

- The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.



7.4 Test Result

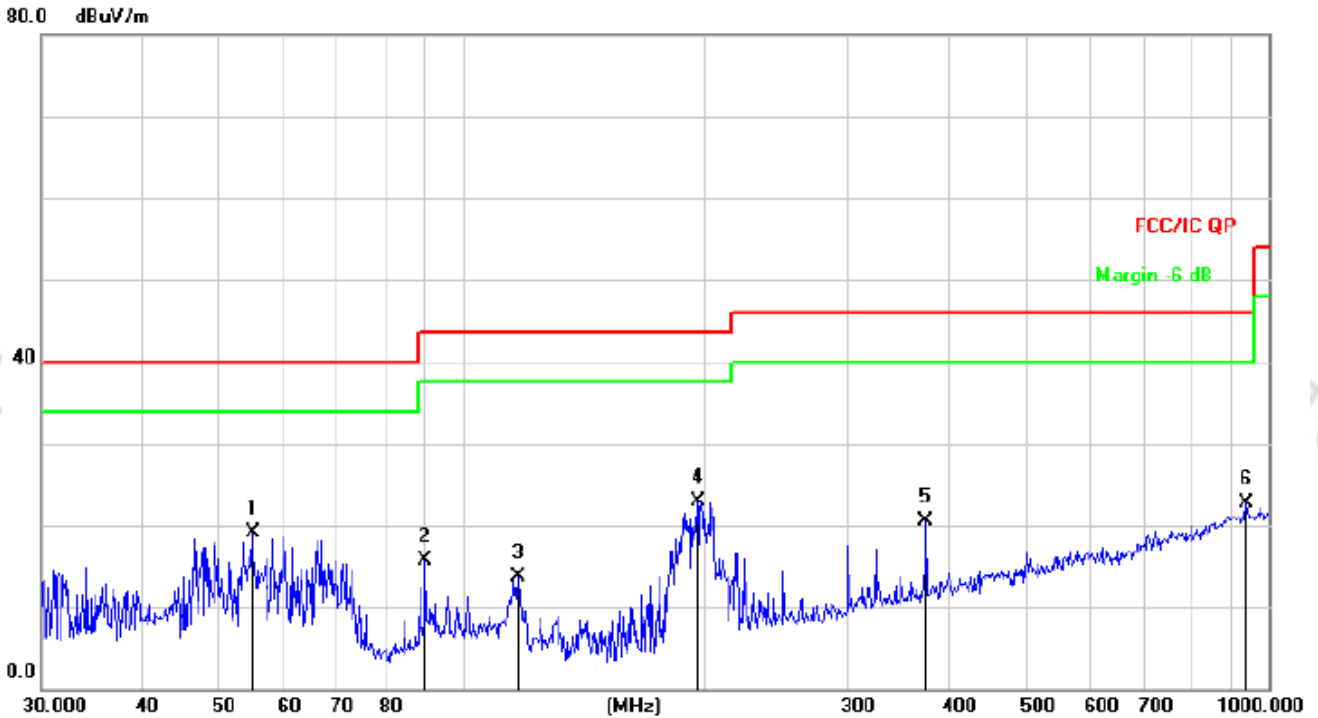
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Horizontal
Test Voltage :	AC120V/60Hz	Test Mode:	Charging



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		70.3365	29.13	-18.26	10.87	40.00	-29.13	QP			
2		106.3850	30.42	-16.69	13.73	43.50	-29.77	QP			
3	*	189.7385	37.88	-16.96	20.92	43.50	-22.58	QP			
4		300.3672	34.47	-13.59	20.88	46.00	-25.12	QP			
5		597.2234	24.38	-6.58	17.80	46.00	-28.20	QP			
6		866.0879	24.60	-2.19	22.41	46.00	-23.59	QP			



Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Vertical
Test Voltage :	AC120V/60Hz	Test Mode:	Charging



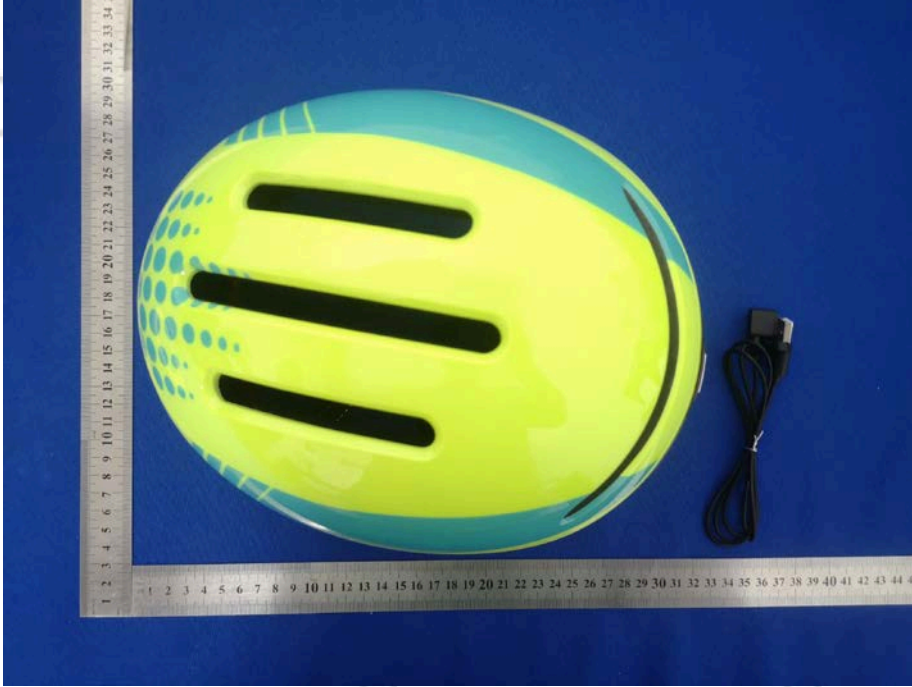
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		54.8348	34.47	-15.36	19.11	40.00	-20.89	QP		
2		89.9047	33.89	-18.12	15.77	43.50	-27.73	QP		
3		116.9495	31.10	-17.37	13.73	43.50	-29.77	QP		
4	*	195.8220	39.46	-16.57	22.89	43.50	-20.61	QP		
5		375.9385	32.18	-11.64	20.54	46.00	-25.46	QP		
6		938.8326	23.82	-1.20	22.62	46.00	-23.38	QP		

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

8. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2





EUT Photo 3





9. EUT TEST SETUP PHOTOGRAPHS

Conducted emission



Radiated emission



***** END OF REPORT *****