RADIO TEST REPORT

ETSI EN 303 345-1 V1.1.1 (2019-06)

ETSI EN 303 345-3 V1.1.1 (2021-06)

Product : 4G Tablet

Trade Mark : Blackview

Model Number : Tab 60

Family Model : Tab 60 Kids

Report No. : S23083004602009

Prepared for

DOKE COMMUNICATION (HK) LIMITED

RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD WANCHAI HK CHINA

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name	DOKE COMMUNICATION (HK) LIMITED
Address.....	RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD WANCHAI HK CHINA
Manufacturer's Name...	Shenzhen DOKE Electronic Co.,Ltd
Address.....	801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road, Guangming District, Shenzhen, China
Product description	
Product name.....	4G Tablet
Trademark	Blackview
Model and/or type reference	Tab 60
Family Model.....	Tab 60 Kids
Standards	ETSI EN 303 345-1 V1.1.1 (2019-06) ETSI EN 303 345-3 V1.1.1 (2021-06)

This device described above has been tested by Shenzhen NTEK, and the test results show that the equipment under test (EUT) is in compliance with the 2014/53/EU RED Directive Art.3.2 requirements. And it is applicable only to the tested sample identified in the report.

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Test Sample Number S230712034002

Date of Test .....

Date (s) of performance of tests ..... Jul 12, 2023 ~ Aug 17, 2023

Date of Issue ..... Sep 14, 2023

Test Result..... **Pass**

Note: All test data of this report are based on the original test report S23071203401009 dated by Aug 17, 2023

Testing Engineer : Mary Hu

(Mary Hu)

Authorized Signatory : Alex Li

(Alex Li)

Shenzhen NTEK Testing Technology Co., Ltd. NTEK Report Seal

Table of Contents **Page**

Revision History

Report No.	Version	Description	Issued Date
S23071203401009	Rev.01	Initial issue of report	Aug 17, 2023
S23083004602009	Rev.02	Added an adapter	Sep 14, 2023

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

Equipment	4G Tablet
Trade Mark	Blackview
Model Number.	Tab 60
Family Model	Tab 60 Kids
Model Difference	All the model are the same circuit and RF module, except the model names.
Product Description	The EUT is 4G Tablet Operation Frequency: FM: 87.5 MHz to 108 MHz Modulation Type: FM: Analog modulation Number Of Channel Please see Note 2. Antenna Designation: Use earphone as Antenna
Channel List	Refer to below
Adapter	Adapter 1: Model: QZ-01000EA00 Input: 100-240V~50/60Hz 0.3A Output: 5.0V⎓2.0A (10.0W) Adapter 2: Model: QZ-01001EA00 Input: 100-240V~50/60Hz 0.3A Output: 5.0V⎓2.0A (10.0W)
Battery	DC 3.87V, 6050mAh, 23.413Wh
Rating	DC 3.87V from battery or DC 5V from adapter
I/O Ports	Refer to users manual
Hardware Version	DK058-T616-V1.0-230602-L1
Software Version	Tab_60_NEU_P30_V1.0

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

1.2 TEST CONDITIONS AND CHANNEL

	Normal Test Conditions
Temperature	15°C - 35°C
Relative Humidity	20% - 75%
Supply Voltage	DC 5V

Number Of Channel

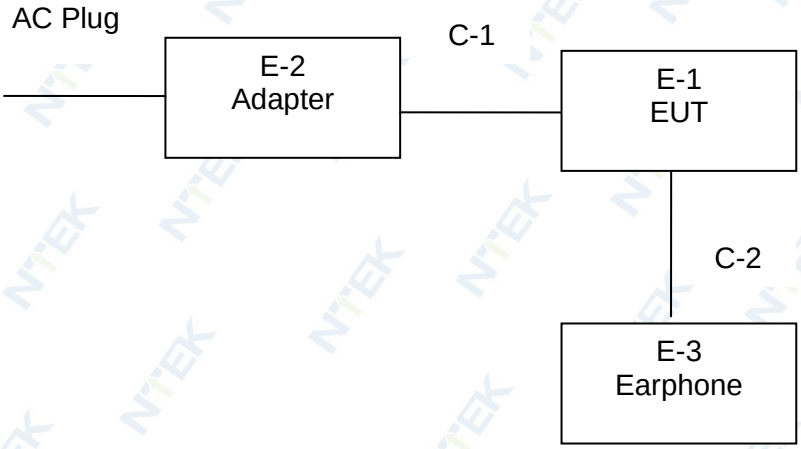
Channel	Frequency (MHz)
01	87.5
02	87.6
k	87.5+0.1(k-1)
106	98.0
……	…
……	……
205	107.9
206	108.0

Test Channel	EUT Channel	Test Frequency (MHz)
Middle	CH106	98.0

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

1.3 DESCRIPTION OF TEST CONDITIONS



1.4 DESCRIPTION OF SUPPORT UNITS

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	Model/Type No.	Series No.	Note
E-1	4G Tablet	Tab 60	N/A	EUT
E-2	Adapter	QZ-01000EA00	N/A	Peripherals
E-3	Earphone	N/A	N/A	Peripherals

Item	Type	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable	YES	NO	1.0m	
C-2	Eaphone Cable	NO	NO	1.2m	

Note:

(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.

1.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	ESG VETCTOR SIGNAL GENERARAOR	Agilent	E4438C	MY45093347	2023.03.21	2024.03.20	1 year
2	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2022.10.19	2023.10.18	1 year
3	Coupler	Mini-Circuits	ZADC-10-63-S+	SF794101410	2023.03.27	2026.03.26	3 year
4	Audio Analyzer	audio precision	ATS-1	41128	2023.03.31	2024.03.30	1 year
5	Spectrum Analyzer	Aglient	E4407B	MY45108040	2023.03.31	2024.03.30	1 year
6	NTEK-EMC-Cable 005	N/A	N/A	N/A	N/A	N/A	N/A

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.16	2024.03.15	1 year
2	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
3	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
4	EMI Test Receiver	R&S	ESCI-7	101318	2023.03.27	2024.03.26	1 year
5	Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
6	Turn Table	EM	SC100	060531	N/A	N/A	N/A
7	50Ω Switch	Anritsu Corp	MP59B	6200983705	2023.05.06	2026.05.05	3 year
8	Spectrum Analyzer	Aglient	E4407B	MY45108040	2023.03.31	2024.03.30	1 year
9	Horn Antenna	EM	EM-AH-10180	2011071402	2023.03.31	2024.03.30	1 year
10	Amplifier	EMC	EMC051835SE	980246	2023.05.29	2024.05.28	1 year

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

ETSI EN 303 345-1 V1.1.1 (2019-06) ETSI EN 303 345-3 V1.1.1 (2021-06)		
Clause	Test Item	Results
4.2	Sensitivity	Pass
4.3	Adjacent channel selectivity and blocking	Pass
4.4	Unwanted emissions in the spurious domain	Pass

2.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd.
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China
FCC Registered No.: 463705 IC Registered No.:9270A-1
CNAS Registration No.:L5516

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **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	Uncertainty in conducted measurements	±1 dB
2	Uncertainty in radiated measurements	±6 dB
4	All emissions,radiated	±0.21dB

3. TEST PROCEDURES AND RESUTLS

3.1 SENSITIVITY

3.1.1 LIMITS

Refer to chapter 4.2 of ETSI EN 303 345-3 V1.1.1 (2021-06)

Table 2: FM sensitivity requirements

De-modulation	Tuned frequency band	Wanted signal centre frequency (MHz)	Required sensitivity limit	
			Conducted (dBm)	Radiated (dBµV/m)
FM	VHF band II	98	-90	50 (see note)
NOTE: For products with an integral antenna, the requirement is relaxed to 67 dBµV/m.				

The limits for sensitivity specified in table 2 shall apply. Each figure quoted is the required level of wanted signal which provides a given level of audio quality. The audio impairment criteria relevant for these tests is that the audio SNR ≥ 40 dBQ ref ±60,8 kHz deviation, and that there shall be 10 seconds of audio with no subjective impairments (e.g. clicks resulting from FM threshold effects).

3.1.2 TEST PROCEDURE

Refer to chapter 5.3.4 of ETSI EN 303 345-1 V1.1.1 (2019-06)

Measurement	
☐Conducted measurement	☒Radiated measurement

3.1.3 TEST SETUP

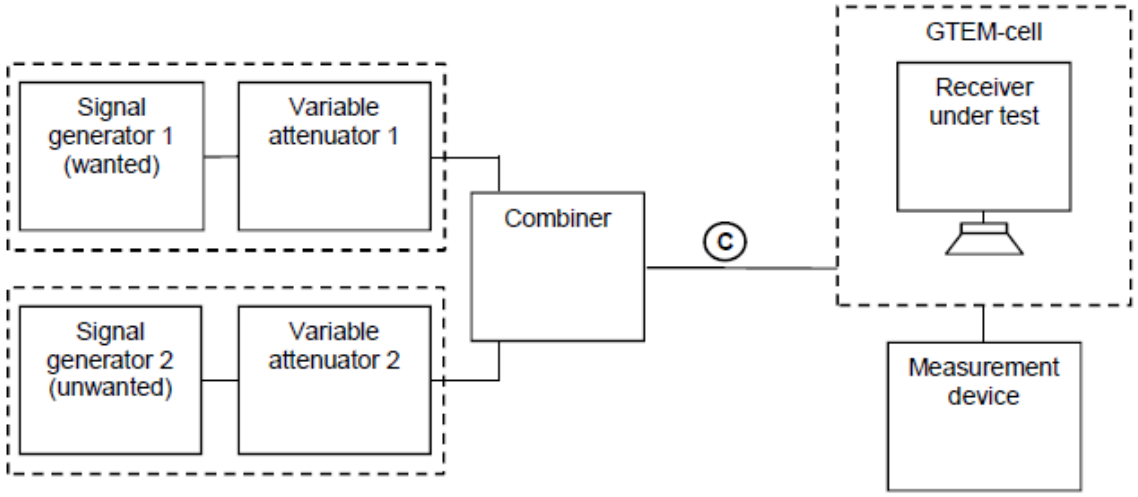


Figure 1: Generic measurement arrangement for receivers with built-in or integral antennas

3.1.4 TEST SIGNALS

The generated FM signals (wanted and unwanted) and the blocking signal shall be in accordance with table 2. The configuration is based on Recommendation ITU-R BS.641 [i.6].

Table 1: FM configuration

Parameter	FM signals		AM signal
	Wanted	Unwanted	Blocking
Audio modulation	1 kHz tone	Weighted noise Recommendation ITU-R BS.559-2 [3], clause 1, band-limited to 15 kHz (see note 1)	1 kHz tone
Other modulation parameters	±60,8 kHz peak deviation	15,9 kHz RMS deviation (see note 2)	80 % depth
Pilot tone	None	None	
NOTE 1: The filter shall have a cut-off frequency of 15 kHz and a minimum roll-off of 60 dB/octave. NOTE 2: This is equivalent to a quasi-peak deviation of 34,8 kHz and has pre-emphasis enabled. The quasi-peak level measurement is defined by Recommendation ITU-R BS.641 [i.5], clause 5; with pre-emphasis disabled the quasi-peak deviation is 32 kHz (14,5 kHz RMS).			

The means of generating the noise modulation for the "unwanted" signal is shown in figure 1.

3.1.5 TEST RESULTS

EUT：	4G Tablet	Model Number ：	Tab 60
Temperature：	26°C	Relative Humidity：	60 %
Pressure：	1012 hPa	Test Voltage ：	DC 3.87V
Test Mode ：	RX-Middle Channel		

Frequency (MHz)	E (dBuV/m)	Signal(dBm)	Sound (mV)	Noise (mV)	SN (dBQ)
98	67	-24.88	220.24	1.78	41.85

3.2. ADJACENT CHANNEL SELECTIVITY AND BLOCKING

3.2.1 LIMITS

Refer to chapter 4.3 of ETSI EN 303 345-3 V1.1.1 (2021-06)

The limits for selectivity and blocking specified in table 4 shall apply with the channel spacings given in table 3. Each figure quoted is the minimum acceptable level of unwanted signal, relative to that of the wanted signal, which provides a given level of audio quality. The audio impairment criteria relevant for these tests is that the audio SNR ≥ 40 dBQ ref ±60,8 kHz deviation, and that there shall be 10 seconds of audio with no subjective impairments (e.g. clicks resulting from FM threshold effects).

Table 4: Adjacent channel selectivity and blocking requirements

De-modulation (see note 1)	Tuned frequency band	C Wanted signal centre frequency (MHz)	C Wanted signal level		Required I/C ratio (see notes 2 and 3)			
			Conducted (dBm)	Radiated (dBµV/m)	N = 2 (dB)	N = 3 (dB)	N = 4 (dB)	Blocking (dB)
FM (built-in or integral antenna)	VHF band II	98	n/a	56 (see note 4)	-15	-3	8	20
FM (external antenna)	VHF band II	98	-84	n/a	3	17	30	30

NOTE 1: The ACS and blocking requirements are currently separated into different limits for radiated and conducted testing methods. These limits are likely to be unified in a future revision of the present document. Users of the present document should consult frequently the latest list published in the Official Journal of the European Union.

NOTE 2: The frequency of the interferer shall be calculated using the channel spacing data in table 3 for each of the 6 defined adjacent channels N = {-4, -3, -2, +2, +3, +4} and the two blocking offsets. Each row of table 4 thus defines 8 individual tests.

NOTE 3: The minimum level of I for the relevant level of impairment is calculated by adding the I/C ratio to the wanted C level.

NOTE 4: The wanted signal level for receivers with integral antenna is 73 dBµV/m.

3.2.2 TEST PROCEDURE

Refer to chapter 5.3.5 of ETSI EN 303 345-1 V1.1.1 (2019-06)

Measurement	
☐Conducted measurement	☒Radiated measurement

3.2.3 TEST SETUP

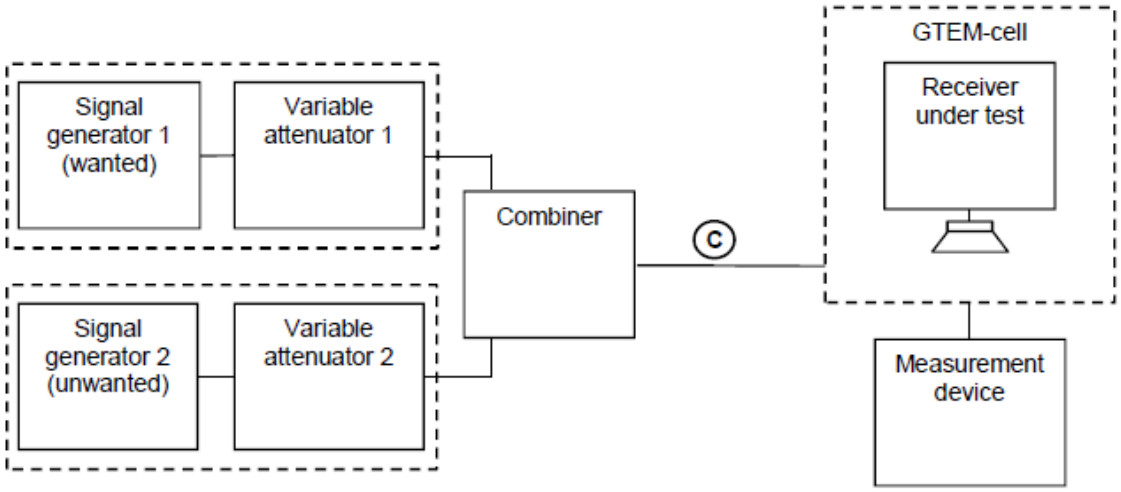


Figure 1: Generic measurement arrangement for receivers with built-in or integral antennas

Figure 6: Arrangement for generating AM and FM interferers

3.2.4 TEST SIGNALS

The generated FM signals (wanted and unwanted) and the blocking signal shall be in accordance with table 2. The configuration is based on Recommendation ITU-R BS.641 [i.6].

Table 1: FM configuration

Parameter	FM signals		AM signal
	Wanted	Unwanted	Blocking
Audio modulation	1 kHz tone	Weighted noise Recommendation ITU-R BS.559-2 [3], clause 1, band-limited to 15 kHz (see note 1)	1 kHz tone
Other modulation parameters	±60,8 kHz peak deviation	15,9 kHz RMS deviation (see note 2)	80 % depth
Pilot tone	None	None	
NOTE 1: The filter shall have a cut-off frequency of 15 kHz and a minimum roll-off of 60 dB/octave. NOTE 2: This is equivalent to a quasi-peak deviation of 34,8 kHz and has pre-emphasis enabled. The quasi-peak level measurement is defined by Recommendation ITU-R BS.641 [i.5], clause 5; with pre-emphasis disabled the quasi-peak deviation is 32 kHz (14,5 kHz RMS).			

The means of generating the noise modulation for the "unwanted" signal is shown in figure 1.

The signal generator 1 provides the wanted Signal (dBm), and the signal generator 2 provides unwanted signal (dBm).

3.2.5 TEST RESULTS

EUT：	4G Tablet	Model Number ：	Tab 60
Temperature：	26°C	Relative Humidity：	60 %
Pressure：	1012 hPa	Test Voltage ：	DC 3.87V
Test Mode ：	RX-Middle Channel		

Adjacent channel selectivity

wanted Frequency (MHz)	wanted Signal E (dBuV/m)	wanted Signal (dBm)			
98	73	-18.28			
unwanted Frequency (MHz)	unwanted Signal E (dBuV/m)	unwanted Signal (dBm)	Sound (mV)	Noise (mV)	SN (dBQ)
97.6	81	-9.93	220.36	1.76	41.95
97.7	70	-21.86	220.35	1.75	42.00
97.8	58	-34.28	220.38	1.73	42.10
98.2	58	-34.3	220.33	1.74	42.05
98.3	70	-21.93	220.39	1.72	42.15
98.4	81	-10.36	220.34	1.778	41.86

Receiver blocking

wanted Frequency (MHz)	wanted Signal E (dBuV/m)	wanted Signal (dBm)			
98	73	-18.28			
unwanted Frequency (MHz)	unwanted Signal E (dBuV/m)	unwanted Signal (dBm)	Sound (mV)	Noise (mV)	SN (dBQ)
98.8	93	2.42	220.32	1.72	42.15
97.2	93	2.35	220.34	1.73	42.10

3.3. UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

3.3.1 LIMITS

Refer to chapter 4.2.6.2 of ETSI EN 303 345-3 V1.1.1 (2021-06)

The limits in CENELEC EN 55032 [4], table A.4, table A5and A6.

3.3.2 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

Table clause	Frequency range MHz	Measurement			Class B limits dB(μV/m)
		Facility (see Table A.1)	Distance m	Detector type / bandwidth	
A4.1	30 to 230	OATS/SAC	10	Quasi Peak / 120 kHz	30
	230 to 1 000				37
A4.2	30 to 230	OATS/SAC	3		40
	230 to 1 000				47
A4.3	30 to 230	FAR	10	Quasi Peak / 120 kHz	32 to 25
	230 to 1 000				32
A4.4	30 to 230	FAR	3		42 to 35
	230 to 1 000				42
Apply only table clause A4.1 or A4.2 or A4.3 or A4.4 across the entire frequency range. These requirements are not applicable to the local oscillator and harmonics frequencies of equipment covered by Table A.6.					

Table Clause	Frequency Range MHz	Measurement			Class B Limit dB(μV/m)	
		Facility (see Table A.1)	Distance m	Detector type / Bandwidth	Fundamental	Harmonics
A6.1	30 to 230	OATS/SAC	10	Quasi Peak / 120 kHz	50	42
	230 to 300					42
	300 to 1 000					46
A6.2	30 to 230	OATS/SAC	3		60	52
	230 to 300					52
	300 to 1 000					56
A6.3	30 to 230	FAR	10	Quasi Peak / 120 kHz	52 to 45	44 to 37
	230 to 300				45	37
	300 to 1 000				45	41
A6.4	30 to 230	FAR	3		62 to 55	54 to 47
	230 to 300				55	47
	300 to 1 000				55	51
Apply only A6.1 or A6.2 or A6.3 or A6.4 across the entire frequency range. These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the LO. Signals at all other frequencies shall be compliant with the limits given in Table A.4.						

(Above 1000MHz)

Table clause	Frequency range MHz	Measurement			Class B limits dB(μV/m)
		Facility (see Table A.1)	Distance m	Detector type/ bandwidth	
A5.1	1 000 to 3 000	FSOATS	3	Average/ 1 MHz	50
	3 000 to 6 000				54
A5.2	1 000 to 3 000			Peak/ 1 MHz	70
	3 000 to 6 000				74
Apply A5.1 and A5.2 across the frequency range from 1 000 MHz to the highest required frequency of measurement derived from Table 1.					

Notes:

(1) The limit for radiated test was performed according to as following: EN55032.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.3.3 TEST PROCEDURE

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 meters above the ground at a 3M meter open area test site. 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; 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.

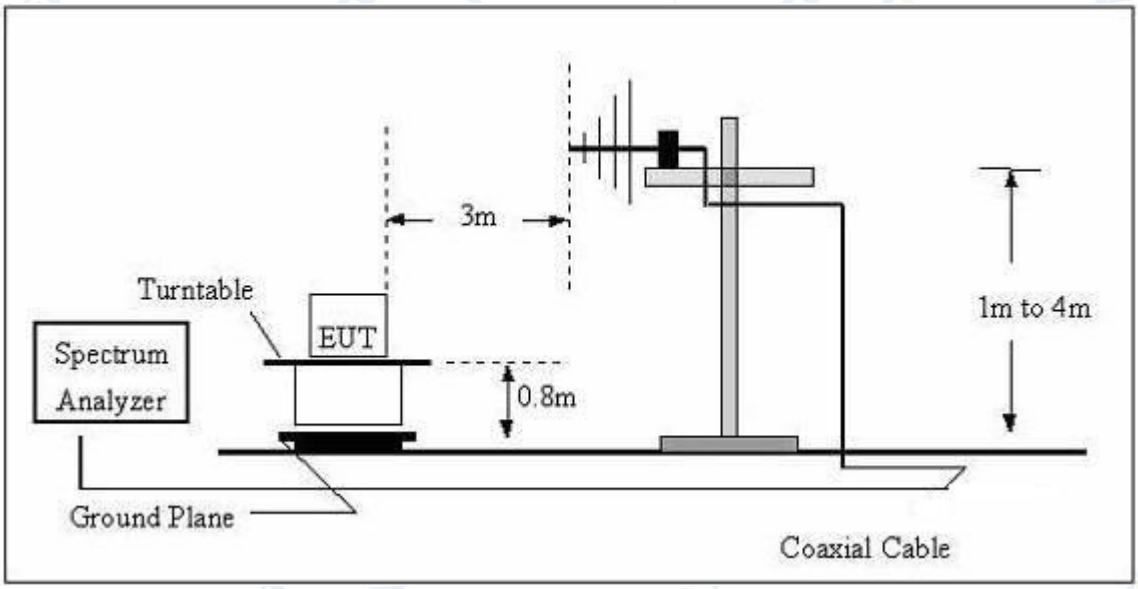
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

e. 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.

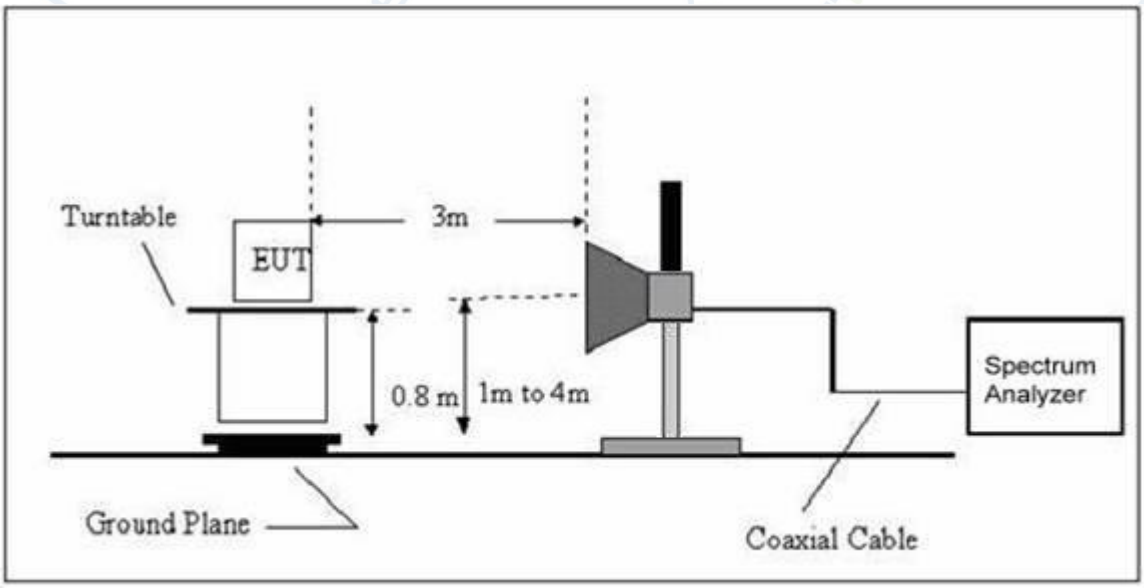
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.3.5 EUT OPERATING CONDITIONS

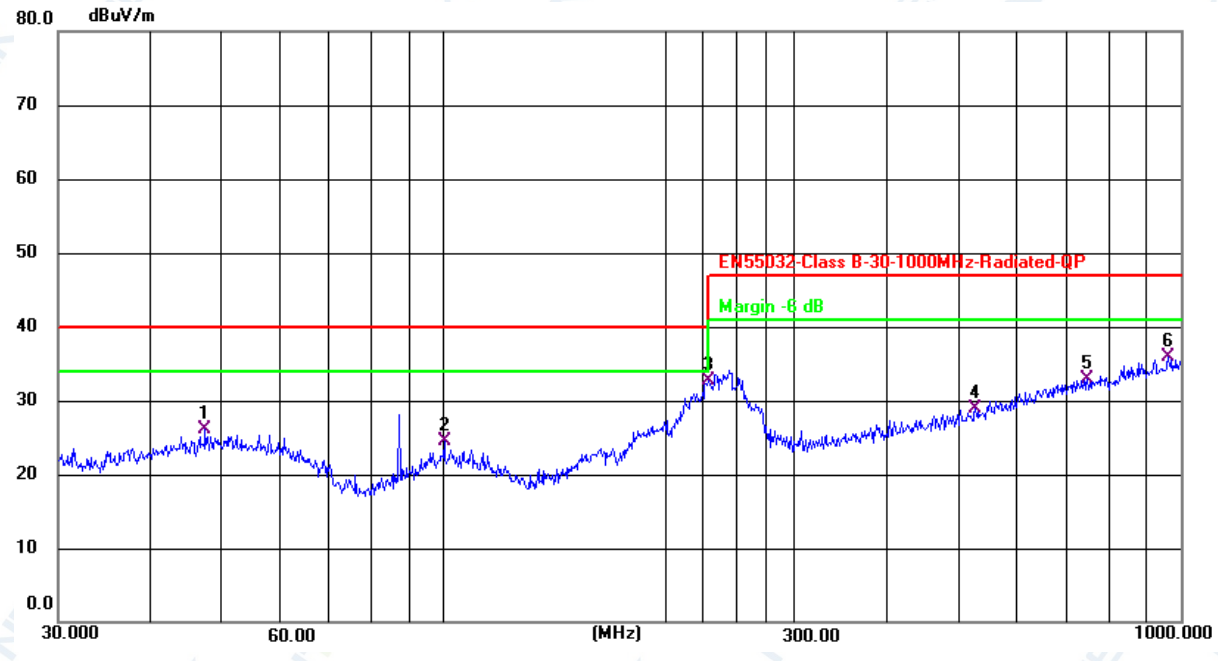
The EUT tested system was configured as the statements of **2.2** Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.6 TEST RESULTS (30-1000MHz)

EUT :	4G Tablet	Model Number :	Tab 60
Temperature :	25.4℃	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Power :	DC 5V from Adapter AC 230V/50Hz	Test Mode :	FM

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
47.4918	5.30	20.71	26.01	40.00	-13.99	QP
100.2286	5.67	18.78	24.45	40.00	-15.55	QP
229.2931	14.14	18.62	32.76	40.00	-7.24	QP
526.3967	4.87	23.94	28.81	47.00	-18.19	QP
747.4825	5.55	27.29	32.84	47.00	-14.16	QP
962.1623	6.26	29.61	35.87	47.00	-11.13	QP

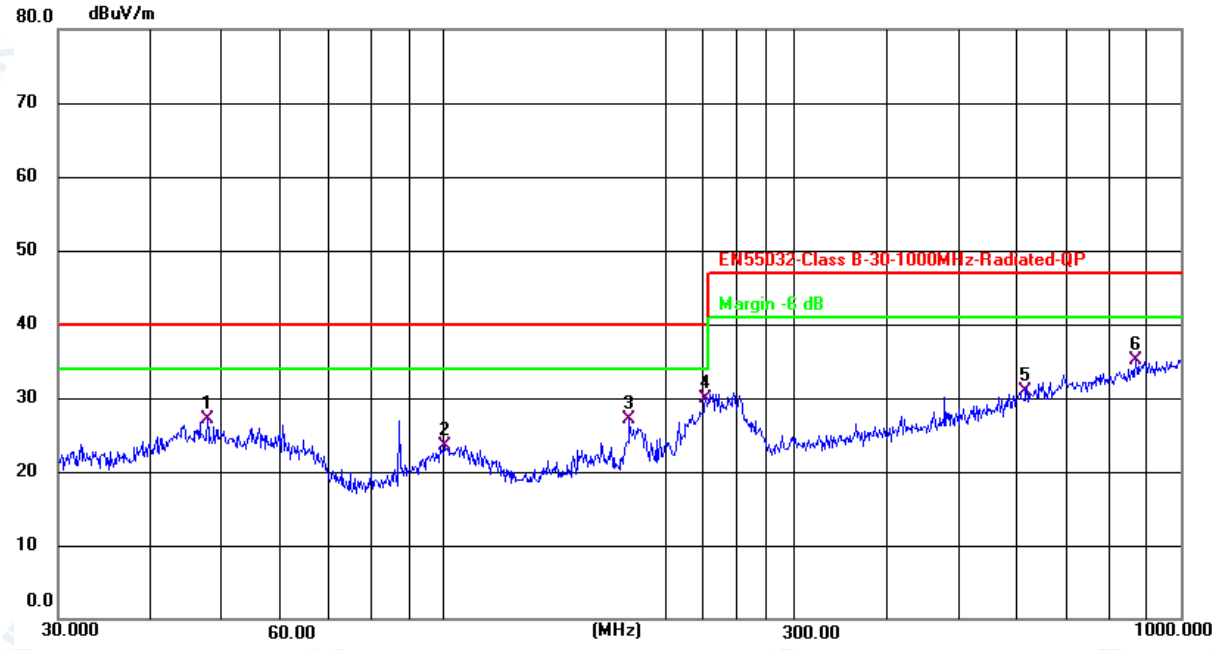
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	4G Tablet	Model Number ：	Tab 60
Temperature：	25.4 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Vertical
Test Power ：	DC 5V from Adapter AC 230V/50Hz	Test Mode ：	FM

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
47.8260	6.33	20.73	27.06	40.00	-12.94	QP
100.5806	4.70	18.78	23.48	40.00	-16.52	QP
178.7584	10.50	16.54	27.04	40.00	-12.96	QP
226.8936	11.40	18.57	29.97	40.00	-10.03	QP
616.3718	5.43	25.40	30.83	47.00	-16.17	QP
869.1302	6.25	28.83	35.08	47.00	-11.92	QP

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



3.3.7 TEST RESULTS(1000-6000 MHz)

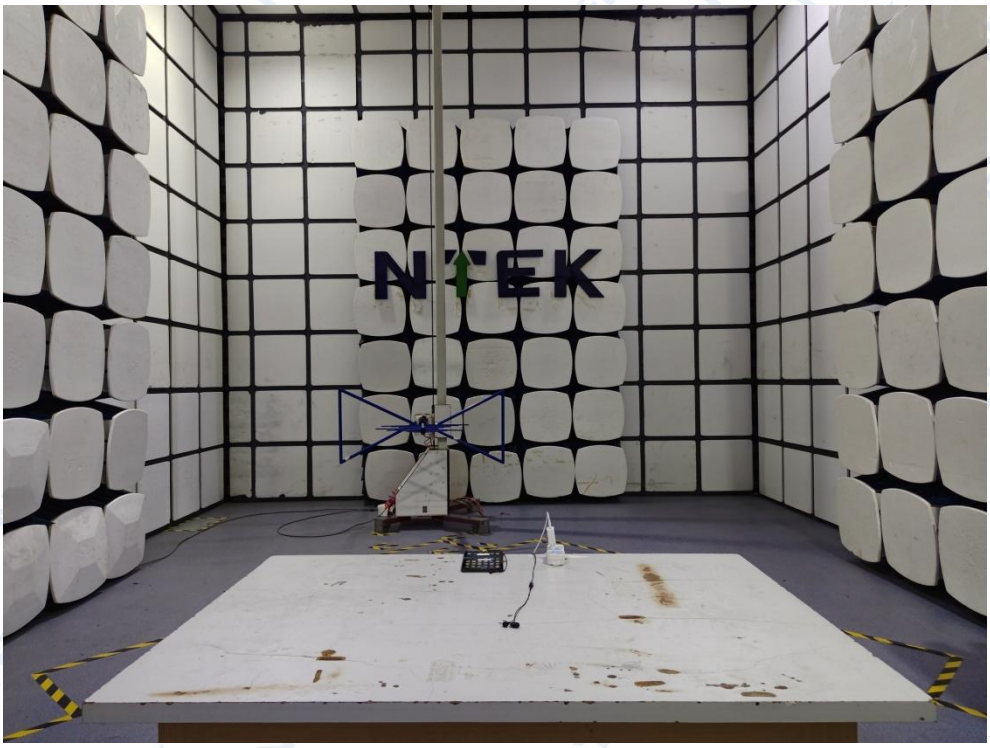
EUT：	4G Tablet	Model Number ：	Tab 60
Temperature：	25.1℃	Relative Humidity：	53%
Pressure：	1010 hPa	Test Mode ：	FM
Test Power ：	DC 5V from Adapter AC 230V/50Hz		

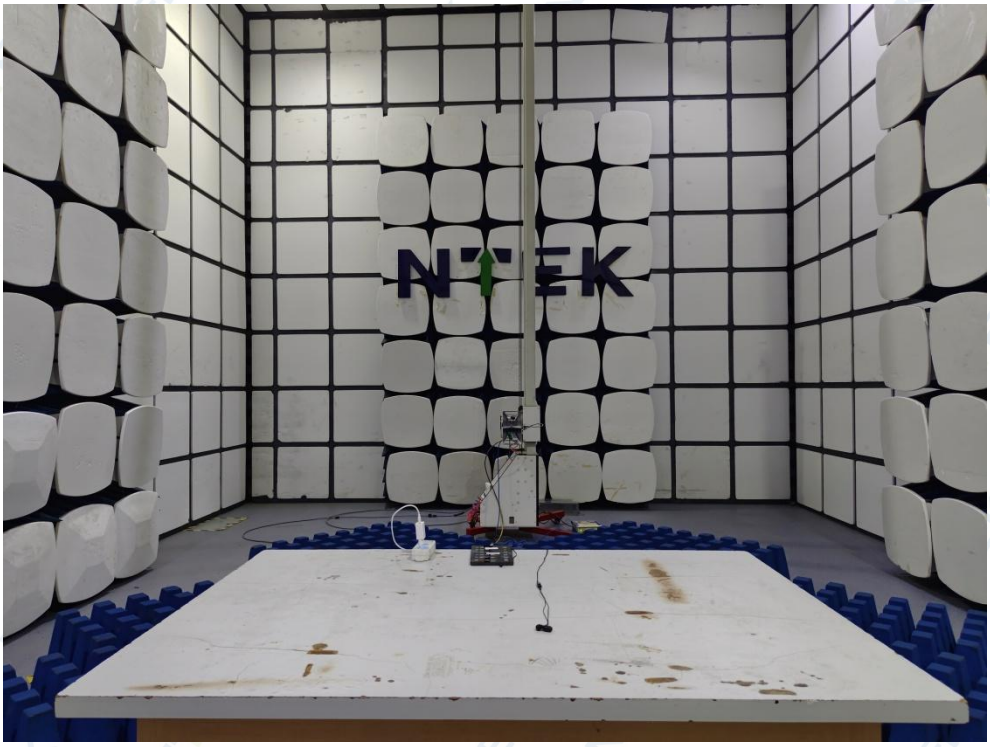
Polar (H/V)	Frequency (MHz)	Meter Reading (dBμV/m)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
V	3205.000	33.68	10.27	43.95	74.00	-30.05	peak
V	3700.000	33.43	10.71	44.14	74.00	-29.86	peak
V	4180.000	33.13	12.08	45.21	74.00	-28.79	peak
V	4675.000	32.72	13.01	45.73	74.00	-28.27	peak
V	5210.000	32.65	14.19	46.84	74.00	-27.16	peak
V	5780.000	32.08	15.13	47.21	74.00	-26.79	peak
H	3710.000	34.31	10.74	45.05	74.00	-28.95	peak
H	3995.000	34.19	11.66	45.85	74.00	-28.15	peak
H	4515.000	34.38	12.71	47.09	74.00	-26.91	peak
H	4690.000	34.61	13.05	47.66	74.00	-26.34	peak
H	5060.000	33.11	14.26	47.37	74.00	-26.63	peak
H	5255.000	33.16	14.21	47.37	74.00	-26.63	peak

Remark:
Emission Level= ReadingLevel+ Factor, Margin= Emission Level - Limit

4. EUT TEST PHOTO

Measurement Photos





END OF REPORT