

FCC Test Report FCC ID: 2AJRK-FSP6

Product: 3D TOUCH PROJECTOR

Trade Name: Foison

Model Number: FSP6

Serial Model: FSP6-S, FSP6-PLUS

Report No.: NTEK-2016NT08278601F3

Prepared for

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Prepared by

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Report No.: NTEK-2016NT08278601F3

TEST RESULT CERTIFICATION

| Address . | | or 6, Xinwuyuan Industry Zone, No. 1, Difu Road,Gushu, |
|-----------------------------------|----------------------|--|
| 7.44.555 | Xixiang, B | aoan, Shenzhen City, Guangdong, China |
| Manufacturer's Name: | shenzhen | Foisontech Corporation Ltd |
| Address: | | or 6, Xinwuyuan Industry Zone, No. 1, Difu Road, Gushu, Baoan, Shenzhen City, Guangdong, China |
| Product description | | |
| Product name: | 3D TOUC | H PROJECTOR |
| Model and/or type reference : | FSP6, FS | P6-S, FSP6-PLUS |
| Standards: | FCC Part ANSI C63 | 15B:01 Oct.2016 3.4:2014 |
| | n complian | ted by NTEK, and the test results show that the ce with Part 15 of FCC Rules. And it is applicable only to |
| This report shall not be reproduc | ced except | in full, without the written approval of NTEK, this |
| • | ised by NT | EK, personnel only, and shall be noted in the revision of |
| the document. | | |
| Date of Test | | 07.4 0040 45.0 1.0040 |
| Date (s) of performance of tests | | 27 Aug. 2016 ~ 15 Oct. 2016 |
| Date of Issue | | 15 Oct. 2016 |
| Test Result | : | Pass |
| | | |
| Testing Engine | eer : | Cake. Xie |
| | · | (Lake Xie) |
| Technical Man | ager : | Jason chen |
| | | (Jason Chen) |
| Authorized Sig | natory: | Sam. Chen |
| | | (Sam Chen) |



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1. TEST SUMMARY

Test procedures according to the technical standards:

| EMC Emission | | | | | | |
|--------------------------------------|--------------------|---------|----------|--------|--|--|
| Standard | Test Item | Limit | Judgment | Remark | | |
| FCC Part15B:2016 ANSI C63.4: 2014 | Conducted Emission | Class B | PASS | | | |
| | Radiated Emission | Class B | PASS | | | |

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report
- (2) For client's request and manual description, the test will not be executed.



1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

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

FCC Registration Number:238937; IC Registration Number:9270A-1

CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

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

A. Conducted Measurement:

| Test Site | Method | Measurement Frequency Range | U, (dB) | NOTE |
|-----------|--------|-----------------------------|---------|------|
| NTEKC01 | ANSI | 150 KHz ~ 30MHz | 3.2 | |

B. Radiated Measurement:

| Test Site | Method | Measurement Frequency Range | U, (dB) | NOTE |
|-----------|--------|-----------------------------|---------|------|
| NTEKA01 | ANSI | 30MHz ~ 1000MHz | 4.7 | |
| | | 1GHz ~12.4GHz | 5.0 | |



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| Equipment 3D TOUCH PROJECTOR | Equipment | 3D TOUCH PROJECTOR | , | | | |
|---|--------------------------|---------------------------------------|---|--|--|--|
| Model Name | • • | | | | | |
| Serial Model | | 5.55 | | | | |
| All the model are the same circuit and RF module, except the software is different. FSP6 is standard 3D versions; FSP6-S is standard 3Dcost down versions; FSP6-PLUS is standard 3D software upgrading versions. The EUT is a 3D TOUCH PROJECTOR. | Model Name | FSP6 | | | | |
| Model Difference different. FSP6 is standard 3D versions; FSP6-S is standard 3Dcost down versions; FSP6-PLUS is standard 3D software upgrading versions. | Serial Model | FSP6-S,FSP6-PLUS | | | | |
| Versions; FSP6-PLUS is standard 3D software upgrading versions. | | All the model are the sam | e circuit and RF module, except the software is | | | |
| The EUT is a 3D TOUCH PROJECTOR . Connecting I/O port: USB, DC in Operation Frequency: BT:2402~2480 MHz WIFI:802.11b/g/n(20MHz): 2412~2462MHz 5180-5240MHz for 802.11a/n(HT20)/AC20; 5190-5230MHz for 802.11a/n(HT20)/AC20; 5190-5230MHz for 802.11a/n(HT20)/AC20; 5745-5825 MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT20)/AC40 BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b : DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM For 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | Model Difference | different. FSP6 is standard | d 3D versions; FSP6-S is standard 3Dcost down | | | |
| Connecting I/O port: USB, DC in BT:2402~2480 MHz WIFI:802.11b/g/n(20MHz): 2412~2462MHz 5180-5240MHz for 802.11a/n(HT20)/AC20; 5190-5230MHz for 802.11a/n(HT20)/AC20; 5745-5825 MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT40)/AC40 5745-5825 MHz for 802.11a/n(HT40)/AC40 BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM For 802.11a/n/ac Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V-=-4000mA Battery DC 12V,5200mAh P5 V3.1 0729 DS V3.1 0729 | | versions; FSP6-PLUS is s | standard 3D software upgrading versions. | | | |
| Operation Frequency: BT:2402~2480 MHz WiFI:802.11b/g/n(20MHz): 2412~2462MHz 5180-5240MHz for 802.11a/n(HT20)/AC20; 5190-5230MHz for 802.11a/n(HT20)/AC20; 5790-5230MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT20)/AC40 5745-5825 MHz for 802.11a/n(HT40)/AC40 BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11b: DSSS (CCK, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=4000mA DC 12V,5200mAh PS V3.1 0729 PS V3.1 0720 PS V3.1 0729 PS V3.1 0720 PS V3.1 0720 PS V3.1 0720 PS V3.1 07 | | The EUT is a 3D TOUCH | HPROJECTOR . | | | |
| WIFI:802.11b/g/n(20MHz): 2412~2462MHz 5180-5240MHz for 802.11a/n(HT20)/AC20; 5190-5230MHz for 802.11n(HT40)/AC40 5745-5825 MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT40)/AC40 BT(1Mbps)/BT4.0: GFSK BT EDR(3Mbps): π /4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac | | | USB, DC in | | | |
| S180-5240MHz for 802.11a/n(HT20)/AC20; S190-5230MHz for 802.11n(HT40)/AC40 S745-5825 MHz for 802.11a/n(HT20)/AC20; S755-5795 MHz for 802.11a/n(HT40)/AC40 S745-5825 MHz for 802.11a/n(HT40)/AC40 Modulation Type: BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π /4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==4000mA DC 12V,5200mAh DC 12V,5200mAh HW Version P5 V3.1 0729 P5 V3. | | Operation Frequency: | BT:2402~2480 MHz | | | |
| S190-5230MHz for 802.11n(HT40)/AC40 5745-5825 MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT40)/AC40 Modulation Type: BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b : DSSS (CCK, QPSK, DBPSK) IEEE 802.11b : DSSS (CCK, QPSK, DBPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=-4000mA Battery | | | WIFI:802.11b/g/n(20MHz): 2412~2462MHz | | | |
| S745-5825 MHz for 802.11a/n(HT20)/AC20; 5755-5795 MHz for 802.11a/n(HT40)/AC40 Modulation Type: BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM Fower Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | | | | | |
| S755-5795 MHz for 802.11a/n(HT40)/AC40 Modulation Type: BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): π /4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | | | | | |
| Product Description Modulation Type: BT(1Mbps)/BT4.0: GFSK BT EDR(2Mbps): \pi /4-DQPSK BT EDR(3Mbps): \pi /4-DQPSK BT EDR(3Mbps): \pi /4-DQPSK BT EDR(3Mbps): \pi -4-DQPSK BT EDR(3Mbps): \pi /4-DQPSK BT EDR(3Mbps): \pi /4-DQPSK BT EDR(3Mbps): \pi -4-DQPSK BT EDR(3Mbps): \pi -4-DQPSK | | | | | | |
| BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK IEEE 802.11b : DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20) : OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | Due di cat De comintie a | Modulation Type: | | | | |
| BT EDR(3Mbps): 8-DPSK IEEE 802.11b : DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20) : OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | Product Description | Woddiation Type. | ` ' ' | | | |
| IEEE 802.11b: DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20): OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V=-4000mA Battery DC 12V,5200mAh P5 V3.1 0729 | | | • • • | | | |
| DSSS (CCK, QPSK, DBPSK) IEEE 802.11g/n (HT20) : OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac | | | · · · | | | |
| IEEE 802.11g/n (HT20) : OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac | | | | | | |
| OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac | | | IEEE 802.11g/n (HT20) : OFDM | | | |
| BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac | | | | | | |
| For 802.11a/n/ac | | | | | | |
| Power Source DC 12V,5200mAh or DC14.4 from adapter Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | | | | | |
| Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | | 101 602.11a/11/aC | | | |
| Model: JHD-AD065C-144400 Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | | | | | |
| Adapter Input: 100-240V~, 50/60Hz, 1.5A Output: 14.4V==-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | Power Source | DC 12V,5200mAh or DC14.4 from adapter | | | | |
| Output: 14.4V==-4000mA Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | | Model: JHD-AD065C-144400 | | | | |
| Battery DC 12V,5200mAh HW Version P5 V3.1 0729 | Adapter | Input: 100-240V~, 50/60Hz, 1.5A | | | | |
| HW Version P5 V3.1 0729 | | Output: 14.4V===4000mA | | | | |
| | Battery | DC 12V,5200mAh | | | | |
| SW Version rk3288-userdebug 5.1.1 LMY49F eng.ytpcba.20160708.113801 test-keys | HW Version | P5 V3.1 0729 | | | | |
| | SW Version | rk3288-userdebug 5.1.1 L | MY49F eng.ytpcba.20160708.113801 test-keys | | | |



2.1.1 DESCRIPTION OF TEST MODES

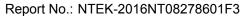
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

| Pretest Mode | Description |
|--------------|--------------|
| Mode 1 | BT playing |
| Mode 2 | WIFI playing |
| Mode 3 | HDMI |
| Mode 4 | AV |
| Mode 5 | USB |
| Mode 6 | TF |

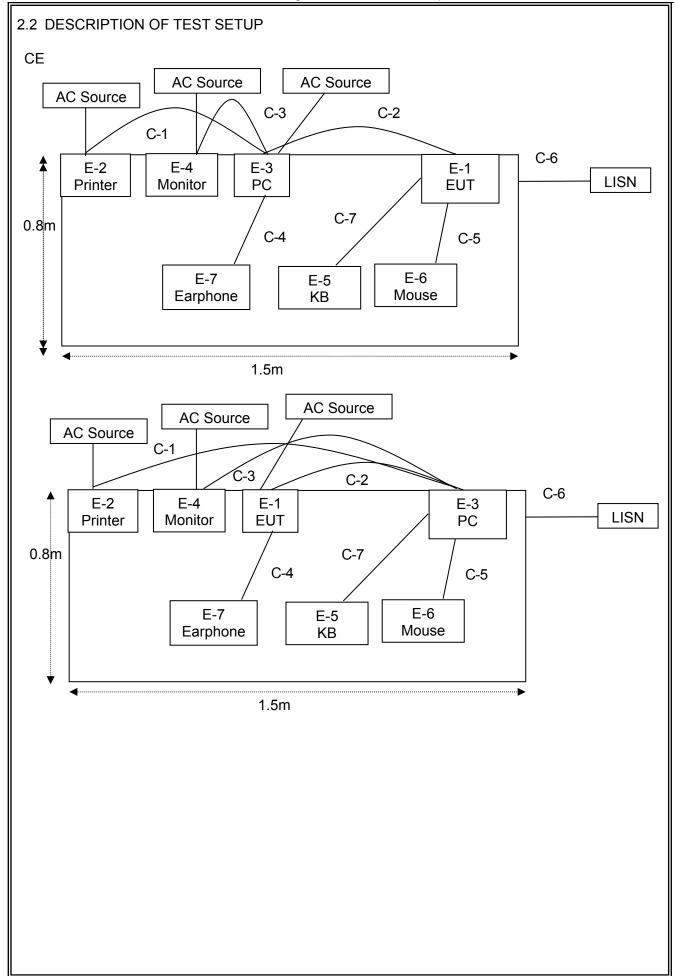
| For Conducted Test | | | | |
|--------------------|--------------|--|--|--|
| Final Test Mode | Description | | | |
| Mode 1 | BT playing | | | |
| Mode 2 | WIFI playing | | | |
| Mode 3 | HDMI | | | |
| Mode 4 | AV | | | |
| Mode 5 | USB | | | |
| Mode 6 | TF | | | |

| For Radiated Test | | | | | |
|-------------------|--------------|--|--|--|--|
| Final Test Mode | Description | | | | |
| Mode 1 | BT playing | | | | |
| Mode 2 | WIFI playing | | | | |
| Mode 3 | HDMI | | | | |
| Mode 4 | AV | | | | |
| Mode 5 | USB | | | | |
| Mode 6 | TF | | | | |

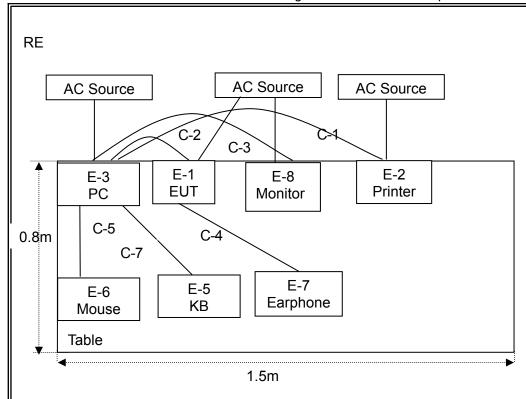
Note: Final Test Mode: Through Pre-scan, find the mode 3 is the worst case. Only the worst case mode is recorded in the report.













2.3 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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 | Brand | Model/Type No. | Series No. | Note |
|------|-----------------------|--------|----------------|------------------------------|------|
| E-1 | 3D TOUCH PROJECTOR | Foison | FSP6 | N/A | EUT |
| E-2 | Printer | Canon | L11121E | LBP2900 | |
| E-3 | Personal computer | DELL | FT4Y23X | 34413561645 | |
| E-4 | Monitor | DELL | IN2020MB | cn-0y6mhx-74261-11f-67e s | |
| E-5 | Keyboard | DELL | SK-8185 | OY526KUS | |
| E-6 | Mouse | DELL | MS111-P | cn-011d3v-71581-11e-1th7 | |
| E-7 | Earphone | N/A | L662 | N/A | |
| E-8 | Monitor | Lenovo | L197wA | OMO4345C1062034 | |
| | | | | | |
| | | | | | |

| Item | Cable Type | Shielded Type | Ferrite Core | Length | Note |
|------|-------------------|---------------|--------------|--------|------|
| C-1 | USB Cable | unshielded | NO | 1.2m | |
| C-2 | HDMI | unshielded | NO | 1.0m | |
| C-3 | USB Cable | unshielded | NO | 1.2m | |
| C-4 | Earphone Cable | unshielded | NO | 1.0m | |
| C-5 | USB Cable | unshielded | NO | 1.0m | |
| C-6 | Power Line | unshielded | NO | 1.2m | |
| C-7 | USB Cable | unshielded | NO | 1.0m | |
| | | | | | |

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 <code>"Length_"</code> column.
- (3) "YES" means "shielded" "with core"; "NO" means "unshielded" "without core".



Radiation Test equipment

2.4 MEASUREMENT INSTRUMENTS LIST

| | Radiation rest equipment | | | | | | |
|------|--------------------------|--------------|-----------------|------------------|------------------|------------------|---------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibratio n period |
| 1 | Spectrum Analyzer | Agilent | E4407B | MY4510804 0 | 2016.07.06 | 2017.07.05 | 1 year |
| 2 | Test Receiver | R&S | ESPI | 101318 | 2016.06.07 | 2017.06.06 | 1 year |
| 3 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2016.07.06 | 2017.07.05 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 620026441 6 | 2016.06.07 | 2017.06.06 | 1 year |
| 5 | Spectrum Analyzer | ADVANTEST | R3132 | 150900201 | 2016.06.07 | 2017.06.06 | 1 year |
| 6 | Horn Antenna | EM | EM-AH-101 80 | 2011071402 | 2016.07.06 | 2017.07.05 | 1 year |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2016.07.06 | 2017.07.05 | 1 year |
| 8 | Amplifier | EM | EM-30180 | 060538 | 2016.07.06 | 2017.07.05 | 1 year |
| 9 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2016.06.08 | 2017.06.07 | 1 year |
| 10 | Power Meter | R&S | NRVS | 100696 | 2016.07.06 | 2017.07.05 | 1 year |
| 11 | Power Sensor | R&S | URV5-Z4 | 0395.1619. 05 | 2016.07.06 | 2017.07.05 | 1 year |
| 12 | Test Cable | N/A | R-01 | N/A | 2016.07.06 | 2017.07.05 | 1 year |
| 13 | Test Cable | N/A | R-02 | N/A | 2016.07.06 | 2017.07.05 | 1 year |

Conduction Test equipment

| Item | Kind of Equipment | Manufactu rer | Type No. | Serial No. | Last calibration | Calibrated until | Calibratio n period |
|------|--------------------------|------------------|----------|----------------|------------------|------------------|---------------------|
| 1 | Test Receiver | R&S | ESCI | 101160 | 2016.06.06 | 2017.06.05 | 1 year |
| 2 | LISN | R&S | ENV216 | 101313 | 2016.08.24 | 2017.08.23 | 1 year |
| 3 | LISN | EMCO | 3816/2 | 00042990 | 2016.08.24 | 2017.08.23 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 620026441 7 | 2016.06.07 | 2017.06.06 | 1 year |
| 5 | Passive Voltage Probe | R&S | ESH2-Z3 | 100196 | 2016.06.07 | 2017.06.06 | 1 year |
| 6 | Absorbing clamp | R&S | MOS-21 | 100423 | 2016.06.08 | 2017.06.07 | 1 year |
| 7 | Test Cable | N/A | C01 | N/A | 2016.06.08 | 2017.06.07 | 1 year |
| 8 | Test Cable | N/A | C02 | N/A | 2016.06.08 | 2017.06.07 | 1 year |
| 9 | Test Cable | N/A | C03 | N/A | 2016.06.08 | 2017.06.07 | 1 year |



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | □Class A (dBuV) | | ⊠Class B (dBuV) | | |
|-----------------|-----------------|---------|-----------------|-----------|--|
| FREQUENCT (MHZ) | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |



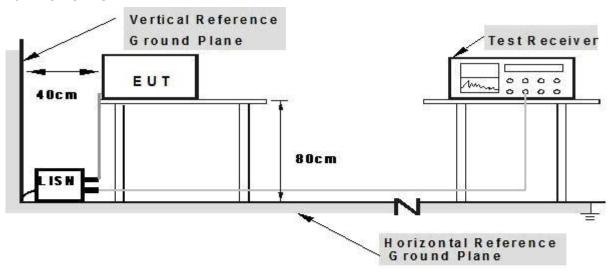
3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected 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.

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- b. 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 40 cm long.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISM.

2.Both of LISMs (AMM) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.



3.1.5 TEST RESULTS

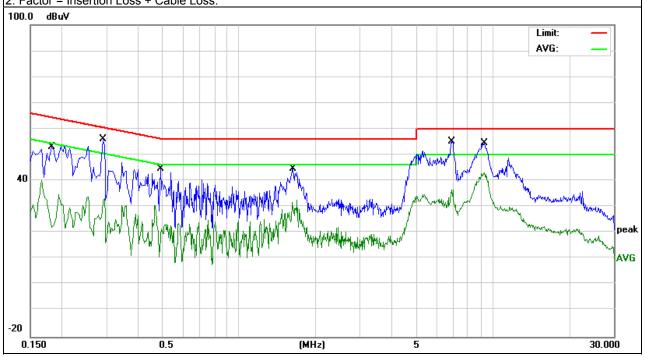
| EUT: | 3D TOUCH PROJECTOR | Model Name. : | FSP6 | | |
|---------------|------------------------------------|--------------------|-----------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2016-8-27 | | |
| Test Mode: | Mode 1 | Phase : | L | | |
| Test Voltage: | DC 14.4V From Adapter AC 120V/60Hz | | | | |

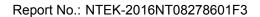
| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark |
|-----------|---------------|----------------|--------------|--------|--------|--------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1819 | 43.02 | 10.13 | 53.15 | 64.39 | -11.24 | QP |
| 0.1819 | 24.61 | 10.13 | 34.74 | 54.39 | -19.65 | AVG |
| 0.2899 | 46.02 | 10.14 | 56.16 | 60.52 | -4.36 | QP |
| 0.2899 | 22.97 | 10.14 | 33.11 | 50.52 | -17.41 | AVG |
| 0.4899 | 34.86 | 9.83 | 44.69 | 56.17 | -11.48 | QP |
| 0.4899 | 20.72 | 9.83 | 30.55 | 46.17 | -15.62 | AVG |
| 1.6298 | 35 | 9.8 | 44.8 | 56 | -11.2 | QP |
| 1.6298 | 22.98 | 9.8 | 32.78 | 46 | -13.22 | AVG |
| 6.8859 | 45.43 | 9.85 | 55.28 | 60 | -4.72 | QP |
| 6.8859 | 26.82 | 9.85 | 36.67 | 50 | -13.33 | AVG |
| 9.2698 | 44.56 | 9.88 | 54.44 | 60 | -5.56 | QP |
| 9.2698 | 33.25 | 9.88 | 43.13 | 50 | -6.87 | AVG |

Remark:

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

2. Factor = Insertion Loss + Cable Loss.





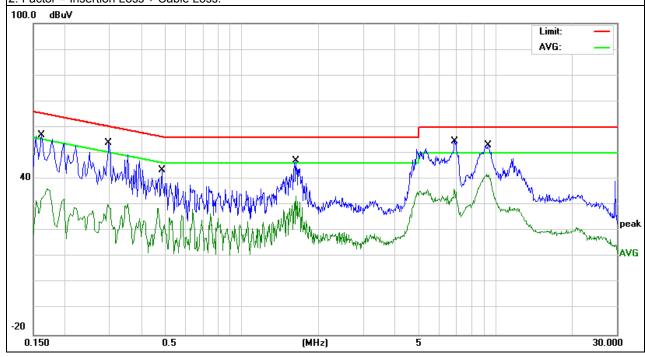


| EUT: | 3D TOUCH PROJECTOR | Model Name. : | FSP6 | | |
|---------------|------------------------------------|--------------------|-----------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2016-8-27 | | |
| Test Mode: | Mode 1 Phase : N | | | | |
| Test Voltage: | DC 14.4V From Adapter AC 120V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Domonic |
|-----------|---------------|----------------|--------------|--------|--------|---------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.162 | 46.85 | 10.07 | 56.92 | 65.36 | -8.44 | QP |
| 0.162 | 26.21 | 10.07 | 36.28 | 55.36 | -19.08 | AVG |
| 0.2979 | 43.96 | 10.13 | 54.09 | 60.3 | -6.21 | QP |
| 0.2979 | 20.23 | 10.13 | 30.36 | 50.3 | -19.94 | AVG |
| 0.4819 | 33.52 | 9.87 | 43.39 | 56.31 | -12.92 | QP |
| 0.4819 | 18.91 | 9.87 | 28.78 | 46.31 | -17.53 | AVG |
| 1.6339 | 37.25 | 9.82 | 47.07 | 56 | -8.93 | QP |
| 1.6339 | 23.58 | 9.82 | 33.4 | 46 | -12.6 | AVG |
| 6.8779 | 44.86 | 9.82 | 54.68 | 60 | -5.32 | QP |
| 6.8779 | 26.46 | 9.82 | 36.28 | 50 | -13.72 | AVG |
| 9.3218 | 43.12 | 9.86 | 52.98 | 60 | -7.02 | QP |
| 9.3218 | 32.05 | 9.86 | 41.91 | 50 | -8.09 | AVG |

Remark:

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



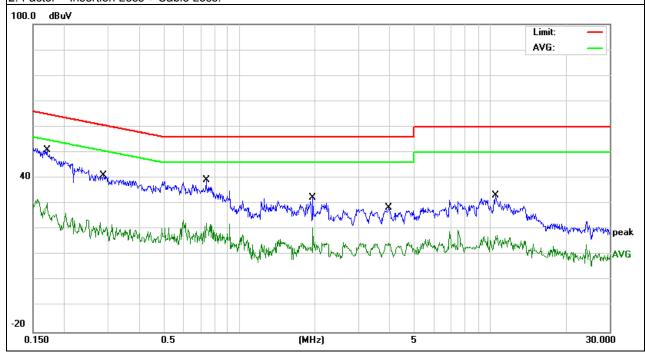


| EUT: | 3D TOUCH PROJECTOR | Model Name.: | FSP6 |
|---------------|---------------------|--------------------|-----------|
| Temperature: | 26 ℃ | Relative Humidity: | 54% |
| Pressure: | 1010hPa | Test Date: | 2016-8-27 |
| Test Mode: | Mode 1 | Phase: | L |
| Test Voltage: | AC 120V/60Hz for PC | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Domonic |
|-----------|---------------|----------------|--------------|--------|--------|---------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1703 | 41.64 | 9.46 | 51.10 | 64.94 | -13.84 | QP |
| 0.1703 | 18.85 | 9.46 | 28.31 | 54.94 | -26.63 | AVG |
| 0.2862 | 31.76 | 9.44 | 41.20 | 60.63 | -19.43 | QP |
| 0.2862 | 10.72 | 9.44 | 20.16 | 50.63 | -30.47 | AVG |
| 0.7378 | 29.97 | 9.43 | 39.40 | 56.00 | -16.60 | QP |
| 0.7378 | 11.18 | 9.43 | 20.61 | 46.00 | -25.39 | AVG |
| 1.9616 | 22.84 | 9.46 | 32.30 | 56.00 | -23.70 | QP |
| 1.9616 | 11.30 | 9.46 | 20.76 | 46.00 | -25.24 | AVG |
| 3.946 | 18.99 | 9.47 | 28.46 | 56.00 | -27.54 | QP |
| 3.946 | 4.38 | 9.47 | 13.85 | 46.00 | -32.15 | AVG |
| 10.5539 | 23.71 | 9.69 | 33.40 | 60.00 | -26.60 | QP |
| 10.5539 | 7.59 | 9.69 | 17.28 | 50.00 | -32.72 | AVG |

Remark:

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

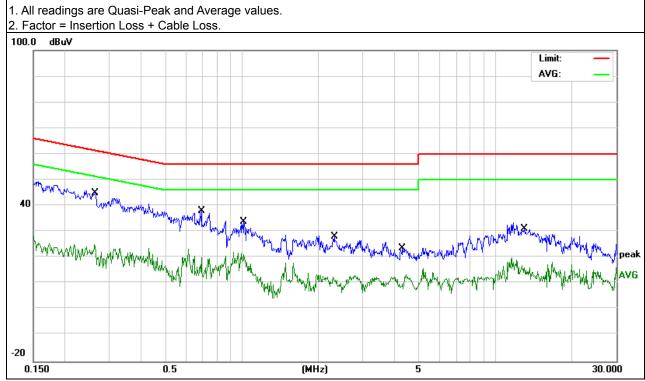




| EUT: | 3D TOUCH PROJECTOR | Model Name.: | FSP6 |
|---------------|---------------------|--------------------|-----------|
| Temperature: | 26 ℃ | Relative Humidity: | 54% |
| Pressure: | 1010hPa | Test Date: | 2016-8-27 |
| Test Mode: | Mode 1 | Phase : | N |
| Test Voltage: | AC 120V/60Hz for PC | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Domonic |
|-----------|---------------|----------------|--------------|--------|--------|---------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.263 | 35.55 | 9.45 | 45.00 | 61.33 | -16.33 | QP |
| 0.263 | 14.71 | 9.45 | 24.16 | 51.33 | -27.17 | AVG |
| 0.6895 | 28.57 | 9.43 | 38.00 | 56.00 | -18.00 | QP |
| 0.6895 | 5.34 | 9.43 | 14.77 | 46.00 | -31.23 | AVG |
| 1.018 | 24.56 | 9.44 | 34.00 | 56.00 | -22.00 | QP |
| 1.018 | 11.75 | 9.44 | 21.19 | 46.00 | -24.81 | AVG |
| 2.314 | 18.74 | 9.46 | 28.20 | 56.00 | -27.80 | QP |
| 2.314 | 1.63 | 9.46 | 11.09 | 46.00 | -34.91 | AVG |
| 4.3139 | 14.18 | 9.48 | 23.66 | 56.00 | -32.34 | QP |
| 4.3139 | 0.27 | 9.48 | 9.75 | 46.00 | -36.25 | AVG |
| 12.9938 | 21.56 | 9.74 | 31.30 | 60.00 | -28.70 | QP |
| 12.9938 | 6.32 | 9.74 | 16.06 | 50.00 | -33.94 | AVG |

Remark:





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

| | Class A (at 10m) | Class B (at 3m) | |
|-----------------|------------------|-----------------|--|
| FREQUENCY (MHz) | dBuV/m | dBuV/m | |
| 30 ~ 88 | 39.0 | 40.0 | |
| 88 ~ 216 | 43.5 | 43.5 | |
| 216 ~ 960 | 46.5 | 46.0 | |
| Above 960 | 49.5 | 54.0 | |

Notes:

- (1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

Test Arrangement for Radiated Emissions up to 1 GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

Test Arrangement for Radiated Emissions above 1 GHz.

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength.Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

Note: For the hand-held device, the EUT should be measured for all 3 axes and only the worst case is recorded in the report

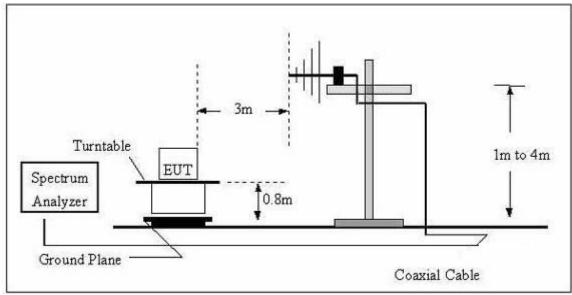


During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

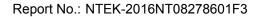
| Frequency Band (MHz) | Function | Resolution bandwidth | Video Bandwidth |
|----------------------|----------|----------------------|-----------------|
| 30 to 1000 QP | | 120 kHz | 300 kHz |
| | Peak | 1 MHz | 1 MHz |
| Above 1000 | Avg | 1 MHz | 10 Hz |

3.2.3 TEST SETUP

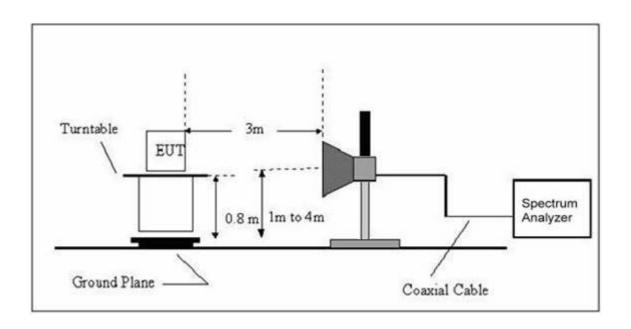
For Radiated Emission 30~1000MHz



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







3.2.4 TEST RESULTS

TEST RESULTS (30~1000 MHz)

| TECT NEODETO (| 00 1000 1011 12) | | | | | |
|----------------|---|--------------------|-----------|--|--|--|
| EUT: | 3D TOUCH PROJECTOR | Model Name: | FSP6 | | | |
| Temperature: | 24 ℃ | Relative Humidity: | 54% | | | |
| Pressure: | 1010 hPa | Test Date : | 2016-8-27 | | | |
| Test Mode : | Mode 1 Polarization : Horizontal | | | | | |
| Test Power: | Test Power : DC 14.4V From Adapter AC 120V/60Hz | | | | | |

Factor

(dB)

12.09

13.53

12.2

13.84

21.63

24.75

37.62

42.59



Frequency

(MHz)

138.8735

172.5988 217.5443

300.3672

651.9416

851.0353

| Report No.: NTEK-2016NT08278601F3 | | | | | |
|-----------------------------------|----------|-------------|--------|--|--|
| | | | | | |
| Emission Level | Limits | mits Margin | | | |
| (dBuV/m) | (dBuV/m) | (dB) | Remark | | |
| 28.52 | 43.5 | -14.98 | QP | | |
| 28.77 | 43.5 | -14.73 | QP | | |
| 36.65 | 46 | -9.35 | QP | | |
| 32.16 | 46 | -13.84 | QP | | |

-8.38

-3.41

QP

QΡ

46

46

Remark:

Polar

(H/V)

Η

Η

<u>Н</u>

Η

Н

Factor = Antenna Factor + Cable Loss - Amplifier.

Meter

Reading

(dBuV)

16.43

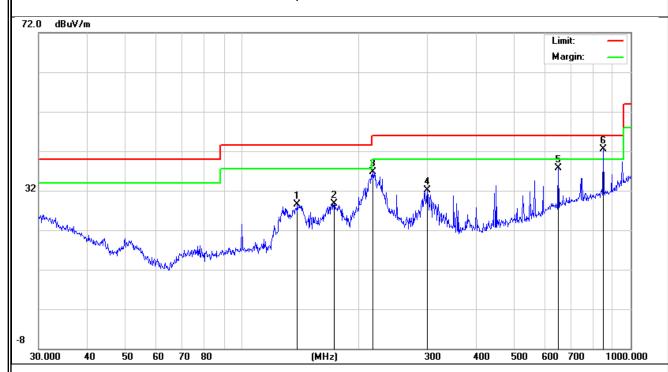
15.24

24.45

18.32

15.99

17.84





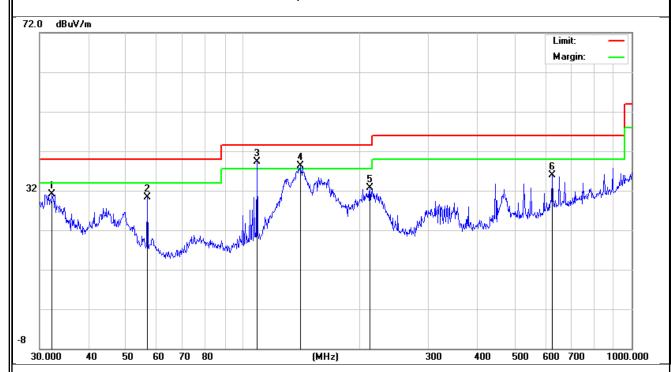


| EUT: | 3D TOUCH PROJECTOR | Model Name : | FSP6 | | |
|--------------|------------------------------------|--------------------|-----------|--|--|
| Temperature: | 24 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010 hPa | Test Date : | 2016-8-27 | | |
| Test Mode: | Mode 1 Polarization : Vertical | | | | |
| Test Power: | DC 14.4V From Adapter AC 120V/60Hz | | | | |

| Polar | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------|-----------|------------------|--------|-------------------|----------|--------|--------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | Roman |
| V | 32.2924 | 11.68 | 19.34 | 31.02 | 40 | -8.98 | QP |
| V | 56.7916 | 23.08 | 7.24 | 30.32 | 40 | -9.68 | QP |
| V | 108.647 | 28.02 | 11.31 | 39.33 | 43.5 | -4.17 | QP |
| V | 140.3421 | 26.23 | 12.11 | 38.34 | 43.5 | -5.16 | QP |
| V | 212.2694 | 20.35 | 12.31 | 32.66 | 43.5 | -10.84 | QP |
| V | 625.0779 | 14.85 | 21.13 | 35.98 | 46 | -10.02 | QP |

Remark:

Factor = Antenna Factor + Cable Loss - Amplifier.





3.2.5 TEST RESULTS(1000~25000MHz)

| EUT: | 3D TOUCH PROJECTOR | Model Name : | FSP6 | | |
|--------------|------------------------------------|--------------------|-----------|--|--|
| Temperature: | 24 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010 hPa | Test Date : | 2016-8-27 | | |
| Test Mode : | Mode 1 Polarization : Vertical | | | | |
| Test Power : | DC 14.4V From Adapter AC 120V/60Hz | | | | |

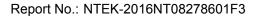
All the modulation modes have been tested, and the worst result was report as below:

| Polar | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------|-----------|------------------|--------|-------------------|----------|--------|--------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | Romank |
| V | 1456.232 | 55.15 | -13.38 | 41.77 | 74 | -32.23 | peak |
| V | 1456.232 | 36.82 | -13.38 | 23.44 | 54 | -30.56 | AVG |
| V | 2388.385 | 53.7 | -10.1 | 43.6 | 74 | -30.4 | peak |
| V | 2388.385 | 37.69 | -10.1 | 27.59 | 54 | -26.41 | AVG |
| Н | 1442.678 | 36.8 | -13.4 | 23.4 | 54 | -30.6 | peak |
| Н | 1442.678 | 55.1 | -13.4 | 41.7 | 74 | -32.3 | AVG |
| Н | 2400.524 | 52.72 | -10.12 | 42.6 | 74 | -31.4 | peak |
| Н | 2400.524 | 36.27 | -10.12 | 26.15 | 54 | -27.85 | AVG |

Remark:

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

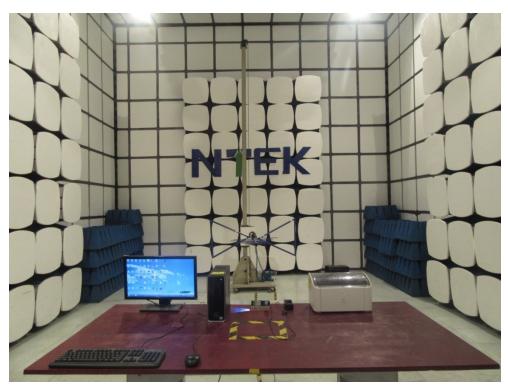
(2) Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level – Limit

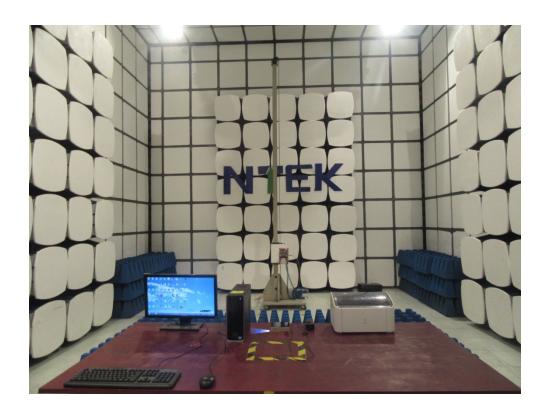




4. EUT TEST PHOTO









Conducted Measurement Photos



