

EMC TEST REPORT

Applicant:	Corporativo Lanix S. A. de C. V.
Address:	Carretera Internacional Hermosillo-Nogales Km 8.5, Hermosillo Sonora, Mexico

Manufacturer or Supplier:	Corporativo Lanix S. A. de C. V.
Address:	Carretera Internacional Hermosillo-Nogales Km 8.5, Hermosillo Sonora, Mexico
Product:	Smartphone
Brand Name:	LANIX
Model Name:	Ilium M7s
FCC ID:	ZC4M7S
Date of tests:	Jan. 25, 2019 ~ Feb. 14, 2019

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

- ☒ FCC Part 15, Subpart B, Class B
- ☒ ANSI C63.4:2014

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Issued by Alex Chen Engineer / Mobile Department	Approved by Sam Tung Manager / Mobile Department
 Date: Feb. 15, 2019	 Date: Feb. 15, 2019

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Test Report No.: FV190124W002

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FV190124W002	Original release	Feb. 15, 2019



1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Smartphone	
BRAND NAME	LANIX	
MODEL NAME	Ilium M7s	
NOMINAL VOLTAGE	5.0Vdc (adapter or host equipment) 3.85Vdc (Li-ion, battery)	
BATTERY	Brand Name: LANIX Model Name: Ilium M7s-BAT Power Rating: DC 3.85V, 2800mAh, Li-ion	
MODULATION TYPE	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	BT_LE	BT-LE(GFSK) for DTS
	Bluetooth	GFSK, $\pi/4$ -DQPSK, 8DPSK, LE
	GPS	C/A code
	FM	FSK
	GSM	GMSK
	WCDMA	BPSK/QPSK
OPERATING FREQUENCY	WLAN	2412-2462MHz for 11b/g/n(HT20)
	Bluetooth/BT_LE	2402MHz ~ 2480MHz
	GPS	1575.42MHz
	FM	87.5MHz ~ 108MHz
	GSM	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)
	WCDMA	1852.4MHz ~ 1907.6MHz(FOR WCDMA Band 2) 826.4MHz ~ 846.6MHz (FOR WCDMA Band 5)
HW VERSION	V1.0	
SW VERSION	Ilium M7s_SW_01_V01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable: non-shielded, detachable, 1.0meter Earphone cable: non-shielded, detachable, 1.2meter	
ACCESSORY DEVICES	Refer to note as below	

NOTE:

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

2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	LANIX
MODEL:	Ilium M7s-C
INPUT:	AC 100-240V, 150mA
OUTPUT:	DC 5V, 1000mA

3. The EUT matched the following USB cable and Earphone:

USB CABLE	
BRAND:	LANIX
MODEL:	Ilium M7s
SIGNAL LINE:	1.0 METER

EARPHONE	
BRAND:	LANIX
MODEL:	Ilium M7s
SIGNAL LINE:	1.2 METER

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

1.2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section	Test Item	Result	Remark
FCC Part 15, Subpart B, Class B ANSI C63.4:2014	Conducted Test	PASS	Meets limits minimum passing margin is -7.69dB at 4.664000MHz.
	Radiated Emission Test (30MHz ~ 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -3.38dB at 167.74MHz
	Radiated Emission Test (Above 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -12.45dB at 3580MHz

1.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT 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.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz ~ 30MHz	+/-2.66dB
Radiated emissions	30MHz ~ 1GHz	+/-3.26dB
	1GHz ~ 18GHz	+/-4.48dB

1.4 DESCRIPTION OF TEST MODES

Test Mode	Test Condition
Radiated emission test	
1	GSM850 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+ camera on
2	GSM1900 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+MPEG4
3	WCDMA B2 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+ FM Rx
4	WCDMA B5 Idle+ Usb Link+ Data Trasmission(EUT to SD)+ Earphone+ GPS Rx+ BT Idle+ WIFI 2.4g Idle
5	GSM850 Idle+ Usb Link+ Data Trasmission(EUT to PC)+ Earphone+ GPS Rx+ BT Idle+ WIFI 2.4g Idle
Conducted emission test	
1	GSM850 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+ camera on
2	GSM1900 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+MPEG4
3	WCDMA B2 Idle+ Adapter+ Earphone+ GPS Rx+ USB cable+ BT Idle+ WIFI 2.4g Idle+ FM Rx
4	WCDMA B5 Idle+ Usb Link+ Data Trasmission(EUT to SD)+ Earphone+ GPS Rx+ BT Idle+ WIFI 2.4g Idle
5	GSM850 Idle+ Usb Link+ Data Trasmission(EUT to PC)+ Earphone+ GPS Rx+ BT Idle+ WIFI 2.4g Idle

NOTE:

1. For conducted emission test, test mode 1, 4 was the worst case and only this mode was presented in this report.
2. For radiated emission test, test mode 1, 4 was the worst case and only this mode was presented in this report

1.5 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.

FOR EMISSION TESTS

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	GPS Simulator +Antenna	TOJOIN	GNSS-5000A	E1-010-010119	N/A
2	Wireless AP	ABOCOM	WR224GR	060500749P	N/A
3	FM signal generator	Rohde & Schwarz	SMB100A	109279	N/A
4	Printer	HP	Hp LaserJet 1300	CNSJF75989	N/A
5	Notebook	Lenovo	Thnikpad X520	SL10H14859JS	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A
2	N/A
3	N/A
4	N/A
5	N/A

2 EMISSION TEST

2.1 CONDUCTED EMISSION MEASUREMENT

2.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

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

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

2.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Mar. 15,18	Mar. 14,19
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 15,18	Mar. 14,19

NOTE: 1. The test was performed in CE shielded room.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2.1.3 TEST PROCEDURES

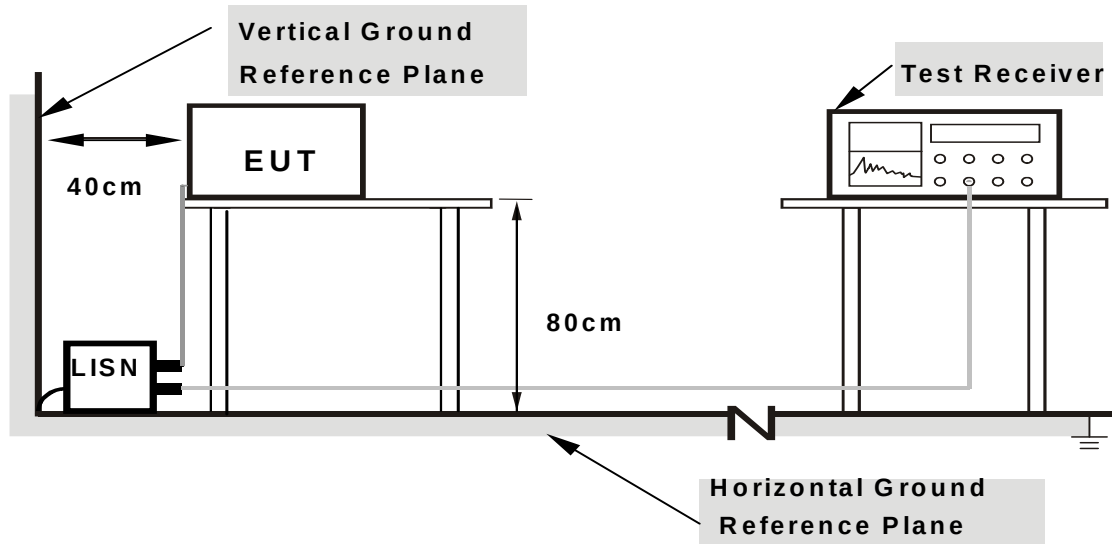
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

2.1.4 DEVIATION FROM TEST STANDARD

No deviation.

2.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

2.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the use type described in the manufacturer's specifications or the user's manual.

2.1.7 TEST RESULTS

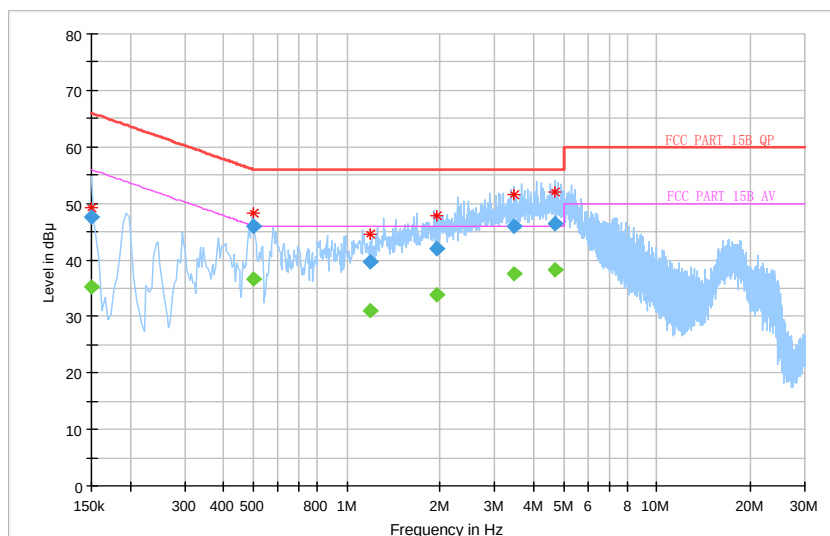
Mode 1

TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50RH	TESTED BY	John Wen

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	35.27	56.00	-20.73	L1	ON	9.6
0.150000	47.66	---	66.00	-18.34	L1	ON	9.6
0.500000	---	36.64	46.00	-9.36	L1	ON	9.7
0.500000	45.96	---	56.00	-10.04	L1	ON	9.7
1.194000	---	30.97	46.00	-15.03	L1	ON	9.7
1.194000	39.76	---	56.00	-16.24	L1	ON	9.7
1.950000	---	33.77	46.00	-12.23	L1	ON	9.7
1.950000	42.09	---	56.00	-13.91	L1	ON	9.7
3.468000	---	37.49	46.00	-8.51	L1	ON	9.7
3.468000	46.00	---	56.00	-10.00	L1	ON	9.7
4.664000	---	38.31	46.00	-7.69	L1	ON	9.7
4.664000	46.48	---	56.00	-9.52	L1	ON	9.7

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum

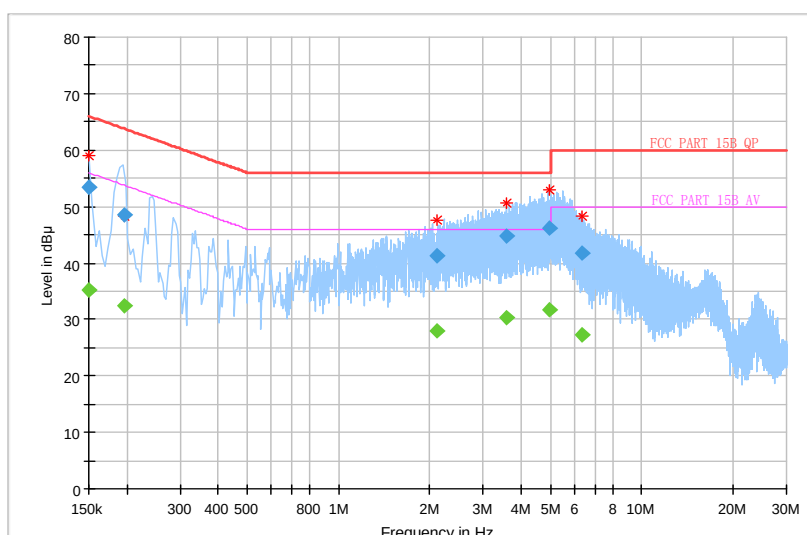


TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50RH	TESTED BY	John Wen

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	35.31	56.00	-20.69	N	ON	9.8
0.150000	53.48	---	66.00	-12.52	N	ON	9.8
0.196000	---	32.35	53.78	-21.42	N	ON	9.9
0.196000	48.57	---	63.78	-15.21	N	ON	9.9
2.112000	---	28.01	46.00	-17.99	N	ON	9.8
2.112000	41.29	---	56.00	-14.71	N	ON	9.8
3.576000	---	30.42	46.00	-15.58	N	ON	9.8
3.576000	44.78	---	56.00	-11.22	N	ON	9.8
4.952000	---	31.76	46.00	-14.24	N	ON	9.8
4.952000	46.28	---	56.00	-9.72	N	ON	9.8
6.338000	---	27.22	50.00	-22.78	N	ON	9.8
6.338000	41.80	---	60.00	-18.20	N	ON	9.8

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum



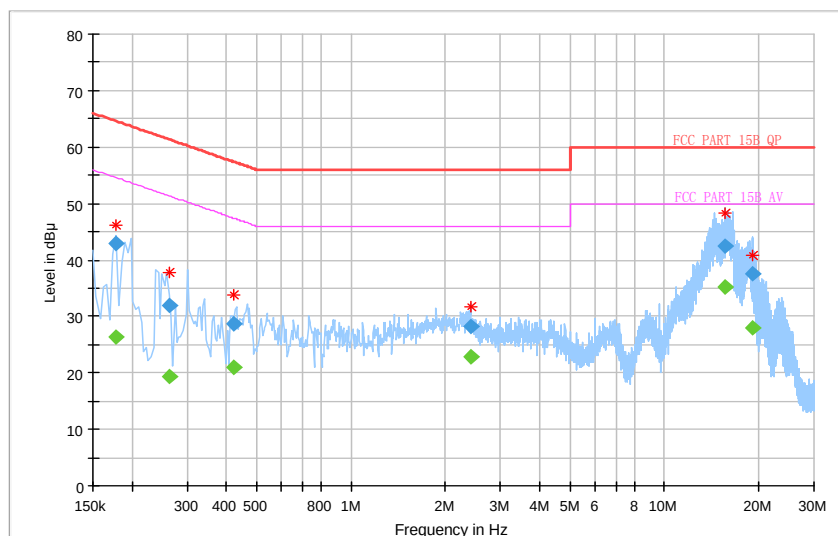
Mode 4

TEST VOLTAGE	Data transmission Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50RH	TESTED BY	John Wen

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.178000	---	26.27	54.58	-28.31	L1	ON	9.7
0.178000	42.93	---	64.58	-21.64	L1	ON	9.7
0.264000	---	19.43	51.30	-31.88	L1	ON	9.7
0.264000	32.02	---	61.30	-29.29	L1	ON	9.7
0.424000	---	20.90	47.37	-26.47	L1	ON	9.7
0.424000	28.77	---	57.37	-28.60	L1	ON	9.7
2.412000	---	22.77	46.00	-23.23	L1	ON	9.7
2.412000	28.18	---	56.00	-27.82	L1	ON	9.7
15.636000	---	35.31	50.00	-14.69	L1	ON	9.9
15.636000	42.53	---	60.00	-17.47	L1	ON	9.9
19.184000	---	27.97	50.00	-22.03	L1	ON	9.9
19.184000	37.59	---	60.00	-22.41	L1	ON	9.9

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum

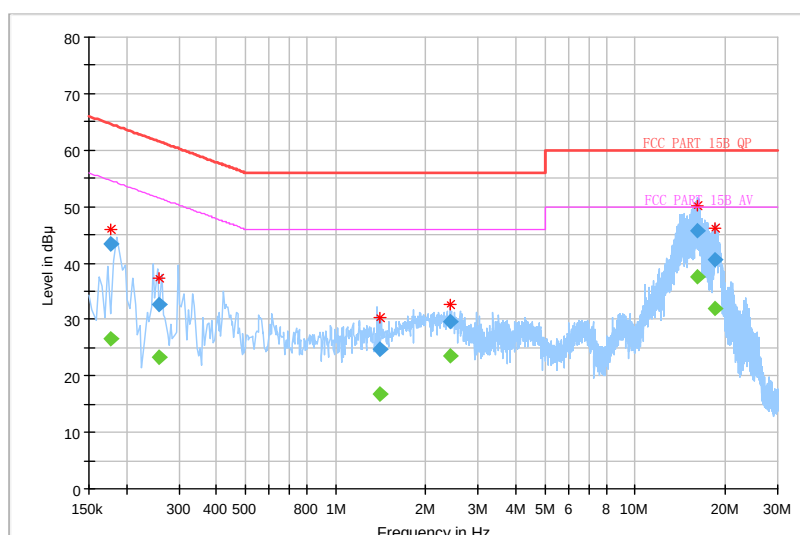


TEST VOLTAGE	Data trasmission Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 50RH	TESTED BY	John Wen

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.178000	---	26.52	54.58	-28.06	N	ON	10.2
0.178000	43.27	---	64.58	-21.30	N	ON	10.2
0.256000	---	23.22	51.56	-28.34	N	ON	10.0
0.256000	32.71	---	61.56	-28.85	N	ON	10.0
1.408000	---	16.75	46.00	-29.25	N	ON	9.9
1.408000	24.75	---	56.00	-31.25	N	ON	9.9
2.408000	---	23.59	46.00	-22.41	N	ON	9.8
2.408000	29.59	---	56.00	-26.41	N	ON	9.8
16.076000	---	37.62	50.00	-12.38	N	ON	9.9
16.076000	45.74	---	60.00	-14.26	N	ON	9.9
18.472000	---	31.86	50.00	-18.14	N	ON	10.0
18.472000	40.69	---	60.00	-19.31	N	ON	10.0

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum



2.2 RADIATED EMISSION MEASUREMENT

2.2.1. LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B/ ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960				
960-1000	49.5	43.5	47	37
1000-3000	Avg: 49.5	Avg: 43.5	Not defined	Not defined
3000+	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960				
960-1000	60	54	57.5	47.5
1000-3000	Avg: 60 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
3000+			Avg: 60 Peak: 80	Avg: 54 Peak: 74

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5 th harmonic of the highest frequency or 40GHz, whichever is lower

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 4. QP detector shall be applied if not specified.

2.2.2. TEST INSTRUMENTS

Frequency range below 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	Apr. 21,18	Apr. 20,19
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 15,18	Mar. 14,19
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 16,18	Mar. 15,19
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jul. 09,18	Jul. 08,19

Frequency range above 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	Apr. 21,18	Apr. 20,19
Horn Antenna	ETS-LINDGREN	3117	00168728	Mar. 15,18	Mar. 14,19
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 16,18	Mar. 15,19
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jul. 09,18	Jul. 08,19

- NOTE:**
1. The test was performed in 3m chamber.
 2. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

2.2.3. TEST PROCEDURE

<Frequency Range below 1GHz>

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 is varied from 1 meter to 4 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.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. $\text{Emission level(dBuV/m)} = \text{Raw Value(dBuV)} + \text{Correction Factor(dB/m)}$
3. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)}$ (if the raw value not contains the amplifier);
4. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)} - \text{Amplifier Gain(dB)}$ (if the raw value contains the amplifier).
5. $\text{Margin value} = \text{Emission level} - \text{Limit value}$.

<Frequency Range above 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic 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 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. The bore sight should be used during the test above 1GHz.
- 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.
- e. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

NOTE:

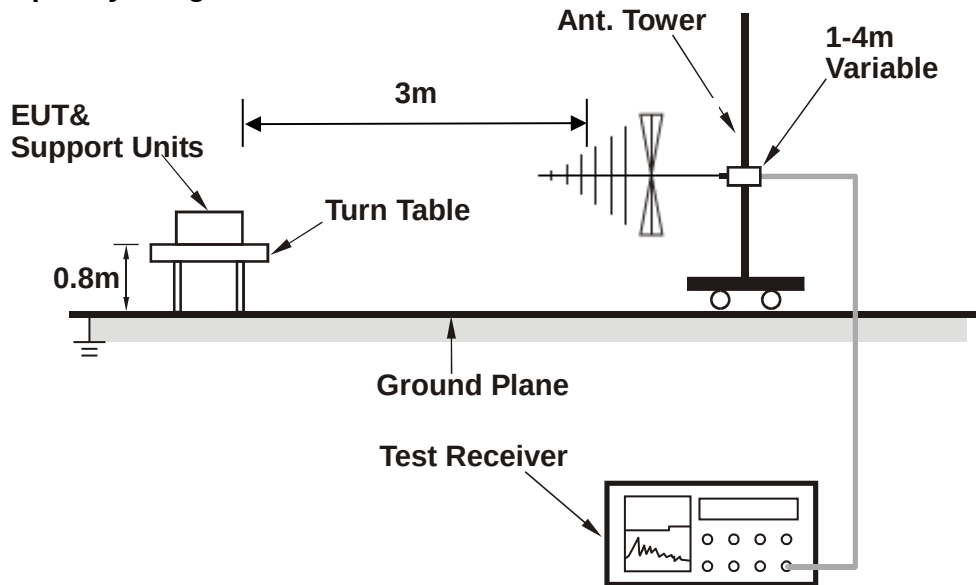
1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth of test receiver/spectrum analyzer is 10Hz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
4. $\text{Emission level(dBuV/m)} = \text{Raw Value(dBuV)} + \text{Correction Factor(dB/m)}$
5. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)}$ (if the raw value not contains the amplifier);
6. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)} - \text{Amplifier Gain(dB)}$ (if the raw value contains the amplifier)
7. $\text{Margin value} = \text{Emission level} - \text{Limit value}$.

2.2.4. DEVIATION FROM TEST STANDARD

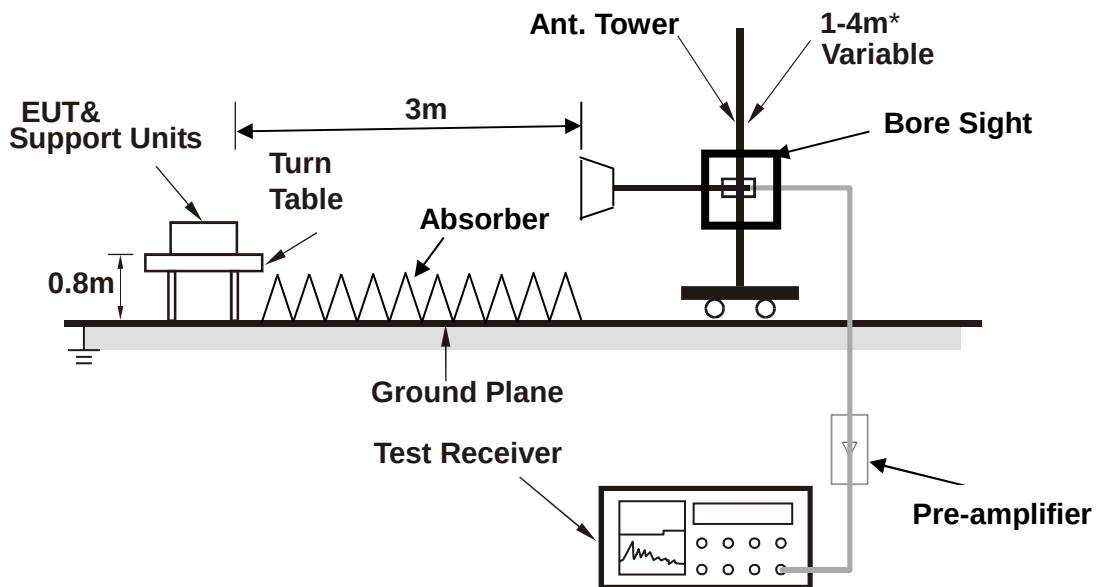
No deviation.

2.2.5. TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

2.2.6. EUT OPERATING CONDITIONS

Same as item 2.1.6.

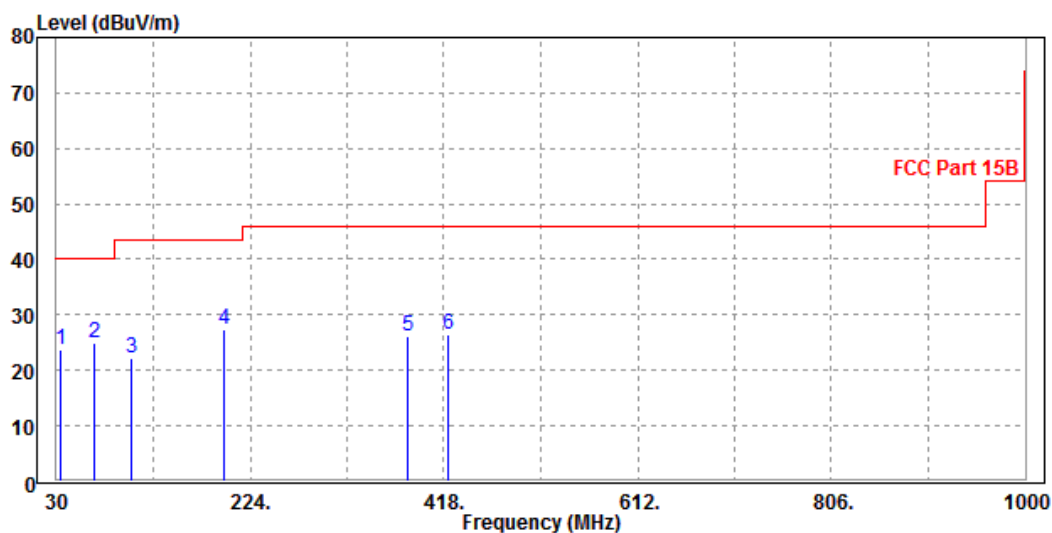
2.2.7. TEST RESULTS

Mode 1

TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	23.78	46.16	40	-16.22	14.28	0.86	37.52	121	45	QP
67.83	25.01	53.68	40	-14.99	7.43	1.17	37.27	132	98	QP
105.66	22.09	48.75	43.5	-21.41	8.97	1.35	36.98	165	254	QP
197.81	27.27	51.5	43.5	-16.23	10.55	1.78	36.56	175	256	QP
382.11	26.22	43.84	46	-19.78	16.51	2.55	36.68	185	298	QP
422.85	26.31	43.07	46	-19.69	17.31	2.7	36.77	125	38	QP

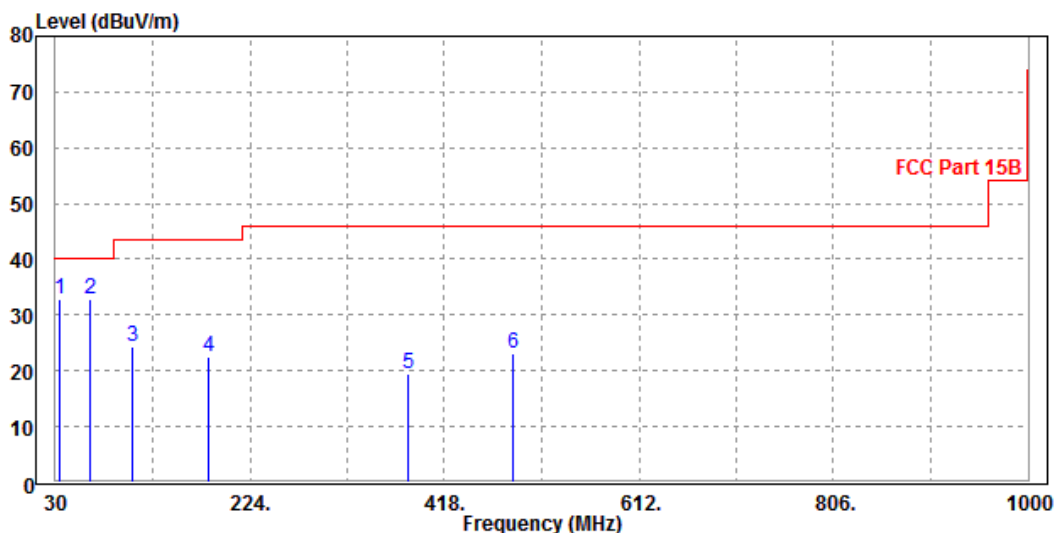
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	32.81	55.19	40	-7.19	14.28	0.86	37.52	115	36	QP
63.95	32.9	61.96	40	-7.1	7.12	1.12	37.3	116	52	QP
106.63	24.28	50.96	43.5	-19.22	8.93	1.36	36.97	124	112	QP
183.26	22.62	47.4	43.5	-20.88	10.18	1.71	36.67	125	189	QP
382.11	19.53	37.15	46	-26.47	16.51	2.55	36.68	132	211	QP
486.87	23.14	39.25	46	-22.86	17.88	2.94	36.93	145	321	QP

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.

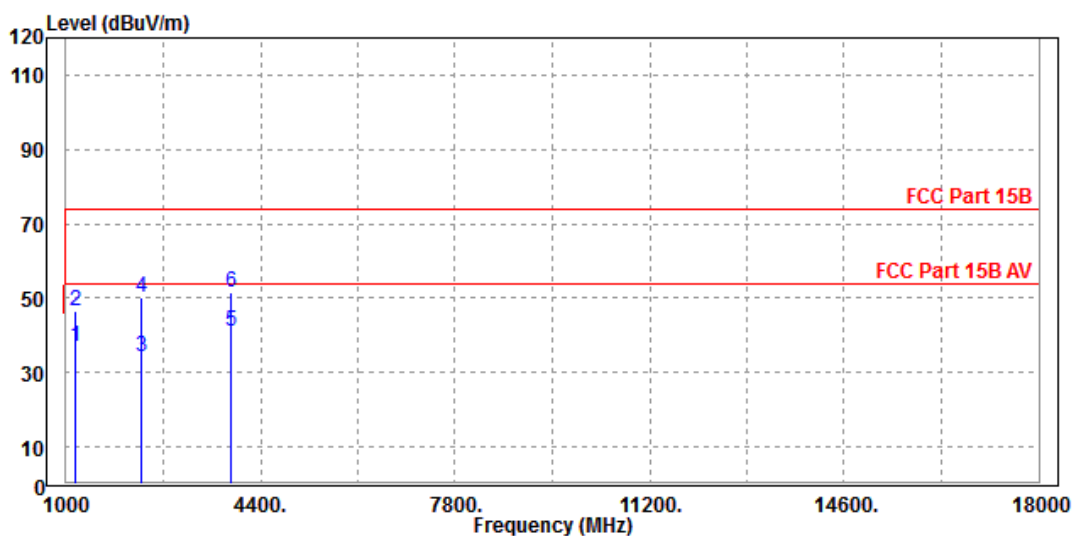


TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
1169	36.78	50.56	54	-17.22	29.03	5.55	48.36	100	168	Average
1169	46.43	60.21	74	-27.57	29.03	5.55	48.36	100	168	Peak
2315	34.27	42.35	54	-19.73	32.22	8.02	48.32	113	150	Average
2315	50.33	58.41	74	-23.67	32.22	8.02	48.32	113	150	Peak
3875	41.28	45.61	54	-12.72	33.6	10.6	48.53	110	98	Average
3875	51.44	55.77	74	-22.56	33.6	10.6	48.53	110	98	Peak

REMARKS:

1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 1GHz to 18GHz.
4. Only emissions significantly above equipment noise floor are reported.

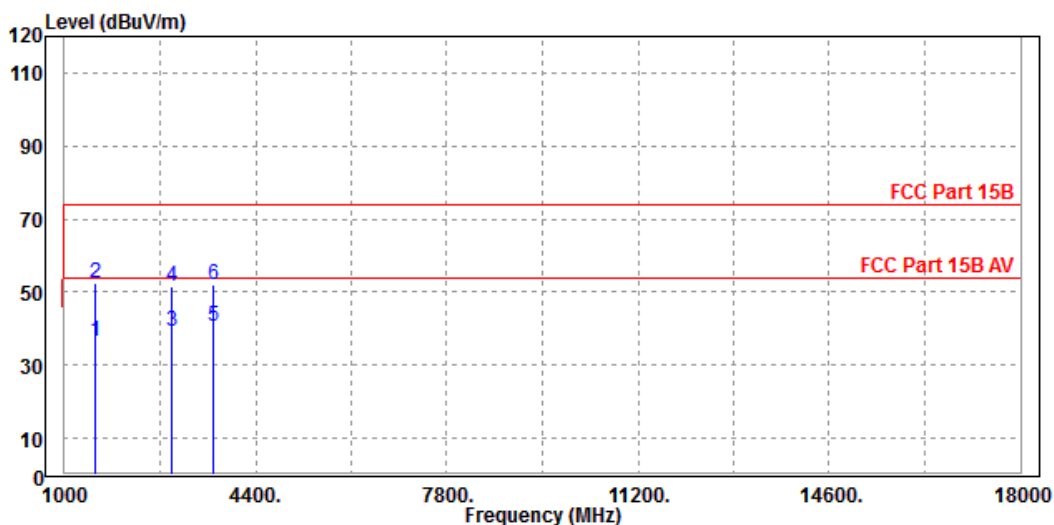


TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
1555	36.65	49.52	54	-17.35	29.05	6.44	48.36	100	179	Average
1555	52.38	65.25	74	-21.62	29.05	6.44	48.36	100	179	Peak
2896	39.17	45.66	54	-14.83	32.8	9.03	48.32	100	188	Average
2896	51.35	57.84	74	-22.65	32.8	9.03	48.32	100	188	Peak
3659	40.68	45.67	54	-13.32	33.25	10.22	48.46	100	104	Average
3659	52.18	57.17	74	-21.82	33.25	10.22	48.46	100	104	Peak

REMARKS:

1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 1GHz to 18GHz.
4. Only emissions significantly above equipment noise floor are reported.

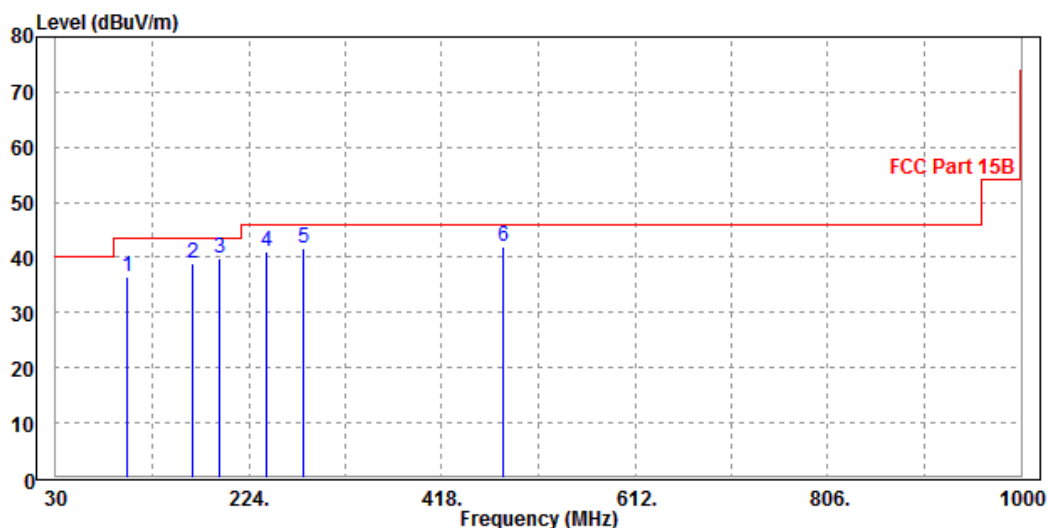


Mode 4

TEST VOLTAGE	Data trasmission Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
101.78	36.55	63.09	43.5	-6.95	9.13	1.32	36.99	121	25	QP
167.74	39	63.63	43.5	-4.5	10.41	1.68	36.72	135	87	QP
193.93	39.9	64.28	43.5	-3.6	10.45	1.76	36.59	115	32	QP
241.46	40.95	63.13	46	-5.05	12.34	2	36.52	154	233	QP
278.32	41.7	62.75	46	-4.3	13.32	2.14	36.51	165	259	QP
480.08	41.86	58.03	46	-4.14	17.82	2.92	36.91	175	351	QP

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.

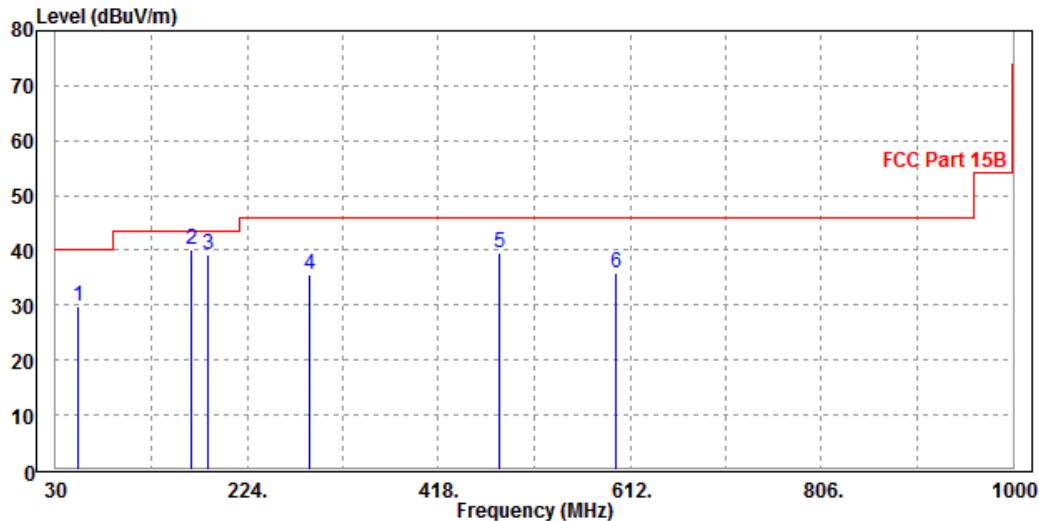


TEST VOLTAGE	Data trasmission Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
52.31	29.76	59.31	40	-10.24	6.8	1.02	37.37	112	35	QP
167.74	40.12	64.75	43.5	-3.38	10.41	1.68	36.72	123	125	QP
185.2	39.22	63.92	43.5	-4.28	10.23	1.72	36.65	136	178	QP
287.05	35.55	56.37	46	-10.45	13.52	2.17	36.51	156	256	QP
480.08	39.47	55.64	46	-6.53	17.82	2.92	36.91	169	325	QP
597.45	35.75	49.88	46	-10.25	19.95	3.16	37.24	185	342	QP

REMARKS:

1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 1000MHz.
4. Only emissions significantly above equipment noise floor are reported.

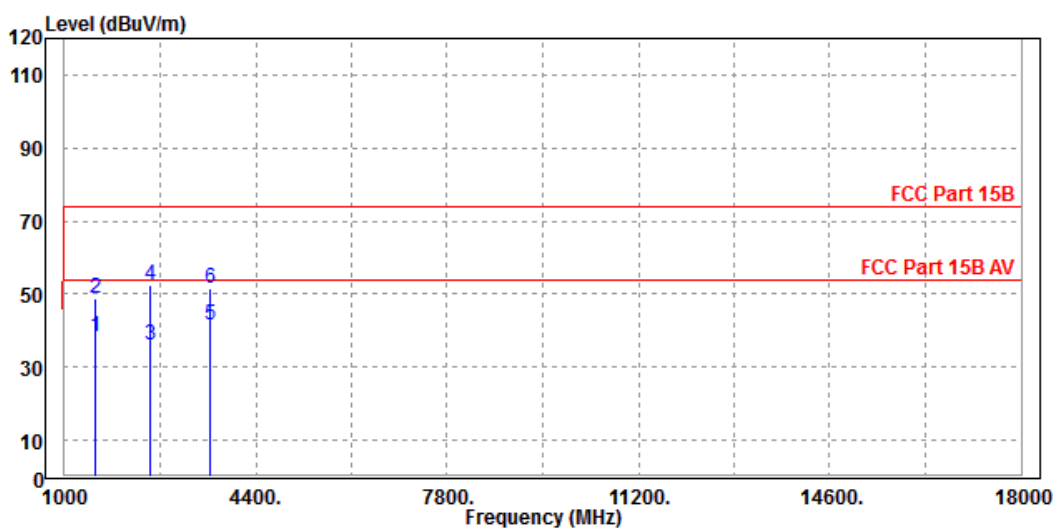


TEST VOLTAGE	Data transmission Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
1560	38.4	51.22	54	-15.6	29.08	6.46	48.36	100	98	Average
1560	48.71	61.53	74	-25.29	29.08	6.46	48.36	100	98	Peak
2510	36.16	43.68	54	-17.84	32.41	8.37	48.3	100	125	Average
2510	52.27	59.79	74	-21.73	32.41	8.37	48.3	100	125	Peak
3580	41.55	46.77	54	-12.45	33.13	10.09	48.44	113	200	Average
3580	51.75	56.97	74	-22.25	33.13	10.09	48.44	113	200	Peak

REMARKS:

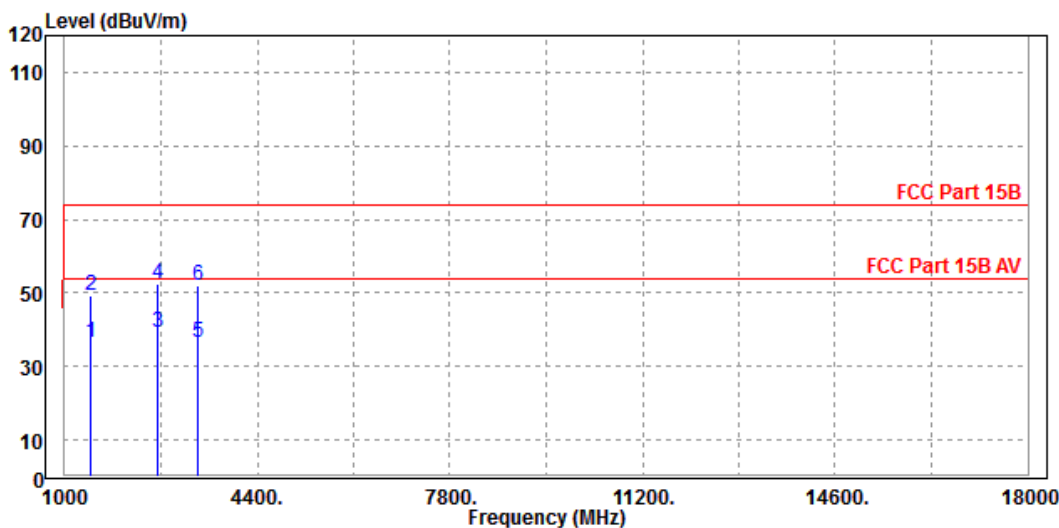
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 1GHz to 18GHz.
4. Only emissions significantly above equipment noise floor are reported.



TEST VOLTAGE	Data transmission Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Star Le		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
1457	36.61	50.01	54	-17.39	28.74	6.22	48.36	100	180	Average
1457	49.16	62.56	74	-24.84	28.74	6.22	48.36	100	180	Peak
2654	39.43	46.58	54	-14.57	32.55	8.61	48.31	100	198	Average
2654	52.64	59.79	74	-21.36	32.55	8.61	48.31	100	198	Peak
3360	36.45	42.13	54	-17.55	32.97	9.74	48.39	100	36	Average
3360	52.19	57.87	74	-21.81	32.97	9.74	48.39	100	36	Peak

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 1GHz to 18GHz.
 4. Only emissions significantly above equipment noise floor are reported.





Test Report No.: FV190124W002

3 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---