



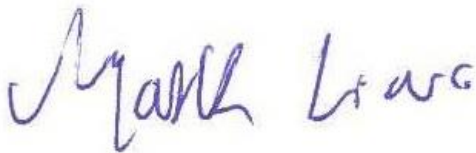
FCC RADIO TEST REPORT

Applicant : ELO TOUCH SOLUTIONS, INC.
Address : 670 N. McCarthy Blvd., Suite 100 Milpitas,
CA 95035 USA
Equipment : Touch All-in-One Computer
Model No. : ESY10I1E, ESY15I1E, ESY22I1E
Trade Name : Elo or 
FCC ID : RBWESYQC5

I HEREBY CERTIFY THAT :

The sample was received on Mar. 07, 2025 and the testing was completed on May 09, 2025 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:



Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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History of this test report

Report No.	Issued Date	Description
24070407-TRFCC07	Nov. 18, 2024	Original
24110305-TRFCC07	Jan. 17, 2025	Add Base (Brand: ELO, Model: KIT, Z20-POS-STAND).
25030004-TRFCC07	May 16, 2025	1. Add 10" / 15" / 22" iron shell available. 2. 15" inch added 2 panel reports (for this iron shell version configuration, it must include the original plastic panel, a total of four models). - Brand: BOE, Model: PV156FHM-N30 - Brand: AUO, Model: A156HAN01.1 3. The original design was external PoE, but this time the application was changed to built-in PoE or without PoE (for this iron shell version configuration). 4. The antenna gain value becomes smaller and the antenna position moves (for this iron shell version configuration). 5. The iron shell version does not come with a base, so there is no Adapter (Billion/BS180-240625MBX(150W) & DELTA/ADP-150EH B (150W)) that comes with the base. 6. This application does not come with an SD Card slot (for this iron shell version configuration).



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.10:2013

Description of Test	Result
CO-LOCATION	PASS

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement, measurement uncertainty evaluation is not considered.

*The difference is list below:

1. Add 10" / 15" / 22" iron shell available.
2. 15" inch added 2 panel reports (for this iron shell version configuration, it must include the original plastic panel, a total of four models).
 - Brand: BOE, Model: PV156FHM-N30
 - Brand: AUO, Model: A156HAN01.1
3. The original design was external PoE, but this time the application was changed to built-in PoE or without PoE (for this iron shell version configuration).
4. The antenna gain value becomes smaller and the antenna position moves (for this iron shell version configuration).
5. The iron shell version does not come with a base, so there is no adapter (Billion/BS180-240625MBX(150W) & DELTA/ADP-150EH B (150W)) that comes with the base.
6. This application does not come with an SD Card slot (for this iron shell version configuration).

After engineering evaluation, the following item need to retest:

1. AC Power Line Conducted Emissions
2. Radiation Emissions



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Operation Frequency Range	BT / BLE: 2400-2483.5MHz WLAN:802.11b/g/n/ax: 2400-2483.5MHz 5GHz:802.11a/n/ac/ax:5150-5250MHz, 5250-5350MHz, 5470-5725MHz, 5725-5875MHz 6GHz: 802.11a/ax: 5925MHz~6425MHz, 6425MHz~6525MHz 6525MHz~6875MHz, 6875MHz~7125MHz
Center Frequency Range	BT / BLE: 2402MHz-2480MHz WLAN:802.11b/g/n/ax: 2412MHz-2462MHz 5GHz:802.11a/n/ac/ax:5180-5240MHz, 5260-5320MHz, 5500-5720MHz, 5745-5825MHz 6GHz: 802.11a/ax: 5955MHz~6415MHz, 6435MHz~6515MHz 6535MHz~6855MHz, 6875MHz~7115MHz
Modulation Type	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK WLAN: 2.4GHz: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM 5GHz: 802.11a/n: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM 6GHz 802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Modulation Technology	DSSS, OFDM, FHSS, DTS, OFDMA
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps, 2Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11ax: MCS0 – MCS11, HE20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80/160 802.11ax: MCS0 – MCS11, HE20/40/80/160 6GHz 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ax: MCS0 – MCS11, HE20/40/80/160
Antenna Type	PIFA Antenna



For 24110305

Antenna Gain (ESY10I1E)	For BT / BLE: 2400-2500MHz: ANT A: 2.01dBi For WLAN: 2400-2500MHz: ANT A: 2.01dBi, ANT B: 2.91dBi 5150-5250MHz: ANT A: 2.46dBi, ANT B: 2.22dBi 5250-5350MHz: ANT A: 2.19dBi, ANT B: 2.44dBi 5470-5725MHz: ANT A: 2.70dBi, ANT B: 2.38dBi 5725-5850MHz: ANT A: 2.70dBi, ANT B: 2.56dBi 5925-6425MHz:ANT A: 2.86dBi, ANT B: 2.54dBi 6425-6525MHz:ANT A: 2.72dBi, ANT B: 2.84dBi 6525-6875MHz:ANT A: 2.72dBi, ANT B: 2.84dBi 6875-7125MHz:ANT A: 2.46dBi, ANT B: 2.28dBi
Antenna Gain (ESY15I1E)	For BT / BLE: 2400-2500MHz: ANT A: 2.72dBi For WLAN: 2400-2500MHz: ANT A: 2.72dBi, ANT B: 2.42dBi 5150-5250MHz: ANT A: 2.44dBi, ANT B: 2.65dBi 5250-5350MHz: ANT A: 1.86dBi, ANT B: 2.69dBi 5470-5725MHz: ANT A: 2.83dBi, ANT B: 2.79dBi 5725-5850MHz: ANT A: 2.63dBi, ANT B: 2.79dBi 5925-6425MHz:ANT A: 2.53dBi, ANT B: 2.48dBi 6425-6525MHz:ANT A: 2.42dBi, ANT B: 2.44dBi 6525-6875MHz:ANT A: 2.42dBi, ANT B: 2.44dBi 6875-7125MHz:ANT A: 2.59dBi, ANT B: 2.44dBi
Antenna Gain (ESY22I1E)	For BT / BLE: 2400-2500MHz: ANT A: 2.32dBi For WLAN: 2400-2500MHz: ANT A: 2.32dBi, ANT B: 2.25dBi 5150-5250MHz: ANT A: 1.75dBi, ANT B: 2.17dBi 5250-5350MHz: ANT A: 2.34dBi, ANT B: 2.17dBi 5470-5725MHz: ANT A: 2.25dBi, ANT B: 2.35dBi 5725-5850MHz: ANT A: 2.65dBi, ANT B: 2.42dBi 5925-6425MHz:ANT A: 2.36dBi, ANT B: 2.58dBi 6425-6525MHz:ANT A: 2.38dBi, ANT B: 2.05dBi 6525-6875MHz:ANT A: 2.38dBi, ANT B: 2.47dBi 6875-7125MHz:ANT A: 2.28dBi, ANT B: 2.25dBi



For 25030004(New addition)

Antenna Gain (ESY10I1E)	For BT / BLE: 2400-2500MHz: ANT A: 0.79dBi For WLAN: 2400-2500MHz: ANT A: 0.79dBi, ANT B: 0.41dBi 5150-5250MHz: ANT A: 0.87dBi, ANT B: 0.92dBi 5250-5350MHz: ANT A: 0.74dBi, ANT B: 1.01dBi 5470-5725MHz: ANT A: 1.16dBi, ANT B: 1.18dBi 5725-5850MHz: ANT A: 1.09dBi, ANT B: 1.30dBi 5925~6425MHz: ANT A: 1.54dBi, ANT B: 1.49dBi 6425~6525MHz: ANT A: 1.53dBi, ANT B: 1.49dBi, 6525~6875MHz: ANT A: 1.43dBi, ANT B: 1.35dBi, 6875~7125MHz: ANT A: 1.44dBi, ANT B: 1.57dBi,
Antenna Gain (ESY15I1E)	For BT / BLE: 2400-2500MHz: ANT A: 1.45dBi For WLAN: 2400-2500MHz: ANT A: 1.45dBi, ANT B: 1.37dBi 5150-5250MHz: ANT A: 1.65dBi, ANT B: 2.03dBi 5250-5350MHz: ANT A: 1.17dBi, ANT B: 2.20dBi 5470-5725MHz: ANT A: 2.08dBi, ANT B: 2.05dBi 5725-5850MHz: ANT A: 2.01dBi, ANT B: 2.07dBi 5925~6425MHz: ANT A: 1.69dBi, ANT B: 2.52dBi, 6425~6525MHz: ANT A: 1.48dBi, ANT B: 2.04dBi, 6525~6875MHz: ANT A: 1.54dBi, ANT B: 2.04dBi, 6875~7125MHz: ANT A: 1.45dBi, ANT B: 1.88dBi,
Antenna Gain (ESY22I1E)	For BT / BLE: 2400-2500MHz: ANT A: 0.75dBi For WLAN: 2400-2500MHz: ANT A: 0.75dBi, ANT B: 0.97dBi 5150-5250MHz: ANT A: 1.49dBi, ANT B: 1.12dBi 5250-5350MHz: ANT A: 1.18dBi, ANT B: 1.12dBi 5470-5725MHz: ANT A: 1.02dBi, ANT B: 1.08dBi 5725-5850MHz: ANT A: 1.24dBi, ANT B: 1.66dBi 5925~6425MHz: ANT A: 1.25dBi, ANT B: 1.39dBi, 6425~6525MHz: ANT A: 1.41dBi, ANT B: 0.97dBi, 6525~6875MHz: ANT A: 1.41dBi, ANT B: 1.29dBi, 6875~7125MHz: ANT A: 1.75dBi, ANT B: 1.77dBi,

EUT powered by

Adapter	ESY10I1E	ESY15I1E	ESY22I1E
Brand: Billion Model: BA090-190474MBX	☒	☒	☒
Brand: Billion Model: BA070-190342MBX	☒	☒	☒
Brand: Delta Model: ADP-65JH HB	☒	☒	☒



For (E554932 KIT, Z20-POS-STAND-GEN2-10 & E767356 KIT, Z20-POS-STAND-GEN2-15):

Flip Stand Without Panel powered by

Adapter	ESY10I1E	ESY15I1E	ESY22I1E
Brand: Billion Model: BS180-240625MBX	☒	☒	☐
Brand: Delta Model: ADP-150EH B	☒	☒	☐
Brand: Billion Model: BA090-240375MBX	☒	☐	☐

For (KIT, Z20-POS-STAND):

Flip Stand Without Panel powered by

Adapter	ESY10I1E	ESY15I1E
Brand: Delta Model: ADP-150EH B	☒	☒
Brand: Billion Model: BS180-240625MBX	☒	☒

For 24110305

Power Cable(EU)*2	Brand: I-SHENG Model: CAB-PWR-EU-3 LOBE-1.8M-BLK-R
Power Cable(US)*2	Brand: I-SHENG Model: CAB-PWR-US-3 LOBE-1.8M-BLK-R
Flip Stand Without Panel (For ESY10I1E)	Brand: ELO Model: E554932 KIT, Z20-POS-STAND-GEN2-10
	Brand: ELO Model: KIT, Z20-POS-STAND
Flip Stand Without Panel (For ESY15I1E)	Brand: ELO Model: E767356 KIT, Z20-POS-STAND-GEN2-15
	Brand: ELO Model: KIT, Z20-POS-STAND
Type-C Cable	Brand: Hotron Model: E113033 CAB, USB-C TO USB-C, Z20 Gen2 15,330mm,HT
Poe Module	Brand: ELO Model: E669163, ELO-KIT-POE-ADAPTER-5.0
Panel (ESY10I1E)	Brand: BOE Model: TV101WUM-NH3 Brand: AUO Model: G101UAN4.0
Panel (ESY15I1E)	Brand: BOE Model: BOE PV156FHM-N20 Brand: LG Model: LP156WFC-SPDZ
Panel (ESY22I1E)	Brand: LG Model: M215WF3-SLS2 Brand: AUO Model: M215HAN01.2



For 25030004(New addition)

Power Cable(EU)*2	Brand: I-SHENG Model: CAB-PWR-EU-3 LOBE-1.8M-BLK-R
Power Cable(US)*2	Brand: I-SHENG Model: CAB-PWR-US-3 LOBE-1.8M-BLK-R
Type-C Cable	Brand: Hotron Model: E113033 CAB, USB-C TO USB-C, Z20 Gen2 15,330mm,HT
Panel (ESY10I1E)	Brand: BOE Model: TV101WUM-NH3 Brand: AUO Model: G101UAN4.0
Panel (ESY15I1E)	Brand: BOE Model: BOE PV156FHM-N20 Brand: LG Model: LP156WFC-SPDZ Brand: BOE Model: PV156FHM-N30(New addition) Brand: AUO Model: A156HAN01.1(New addition)
Panel (ESY22I1E)	Brand: LG Model: M215WF3-SLS2 Brand: AUO Model: M215HAN01.2

Note:

1. EUT support TPC Function.
2. EUT supports DFS Client Mode, without radar detection.
3. WLAN and BT can simultaneously transmission.
4. The device not support Channel Puncturing or Bandwidth Reduction mechanisms supported
5. 802.11ax EUT Only Support Full RU
6. EUT Operating mode: Indoor Client.
7. For more details, please refer to the User's manual of the EUT.

Difference description:

For 24110305

Model No.	Remark
ESY10I1E	Only different sizes, other circuits, layout, product specifications are all the same.
ESY15I1E	
ESY22I1E	

For 25030004(New addition)

Model No.	Remark
ESY10I1E	Only different sizes, other circuits, layout, product specifications are all the same. For details, please see chapter 1.1.
ESY15I1E	
ESY22I1E	

Note: ESY22I1E(built-in PoE) was the worst case, so it was used for the test result.



2.2 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- The complete test system included Notebook and EUT for RF test.
- An executive program, "QRCT ver.4.0-00189" under Windows OS system was executed to transmit and receive data via Bluetooth & WLAN.
- The test model no. is ESY2211E. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	BT GFSK CH00 + 2.4G 11ax20 CH06 With Adapter
2	BT GFSK CH00 + 5G 11ax20 CH52 With Adapter
3	BT GFSK CH00 + 6E 11ax160 CH175 With Adapter
caused "Test Mode 1~3" generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
Test Mode	Operating Description
1	BT GFSK CH00 + 2.4G 11ax20 CH06 With Adapter
2	BT GFSK CH00 + 5G 11ax20 CH52 With Adapter
3	BT GFSK CH00 + 6E 11ax160 CH175 With Adapter
caused "Test Mode 1~3" generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz)	
Test Mode	Operating Description
1	BT GFSK CH00 + 2.4G 11ax20 CH06 With Adapter
2	BT GFSK CH00 + 5G 11ax20 CH52 With Adapter
3	BT GFSK CH00 + 6E 11ax160 CH175 With Adapter
caused "Test Mode 1~3" generated the worst case, it was reported as the final data.	

For ESY2211E
(BT+2.4G)

worst case (V)

Test Item /test voltage	AC 120V / 60Hz	AC 240V / 60Hz.
AC Power Line Conducted Emission		V
Radiation Emissions (Below 1GHz)		V

(BT+5G)

worst case (V)

Test Item /test voltage	AC 120V / 60Hz	AC 240V / 60Hz.
AC Power Line Conducted Emission		V
Radiation Emissions (Below 1GHz)		V

(BT+6E)

worst case (V)

Test Item /test voltage	AC 120V / 60Hz	AC 240V / 60Hz.
AC Power Line Conducted Emission		V
Radiation Emissions (Below 1GHz)		V



2.3 Description of Test System

Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	P73G	N/A	Adapter / 1.8m / NS
USB Cable (A to A)	BENEVO	E210567AWM	1m / NS	N/A
POE	Bluewave	GP-V480-032G	N/A	N/A
RJ45 Cable	N/A	N/A	1.2m / NS	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	AUAS	P2430U	N/A	Adapter / 1.8m / NS
USB Cable (A to A)	BENEVO	E210567AWM	1m / NS	N/A
POE	Bluewave	JS-100GT	N/A	N/A
RJ45 Cable	N/A	N/A	1.2m / NS	N/A

**2.4 General Information of Test**

Organization	CerpPASS Technology Corp.		
☒ Test Site	CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881		
	FCC	TW1439, TW1079	
	IC	4934E-1, 4934E-2	
Frequency Range Investigated	Conducted: from 150kHz to 30 MHz Radiation: from 9kHz to 40,000MHz		
Test Distance	The test distance of radiated emission from antenna to EUT is 3 M.		

Test Item	Test Site	Test period	Environmental Conditions	Tested By
Radiated Emissions	3M02-NK	2025/04/25	19.1°C / 61%	Leon Huang
Radiated Emissions	3M02-NK	2025/05/09	21.9°C / 53%	Leon Huang
AC Power Line Conducted Emission	CON02-NK	2025/04/26	22.3°C / 59%	Leon Huang



2.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

For BT/BLE/2.4G/5G

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.2dB
Radiated Spurious Emission(9KHz~30MHz)	±3.5dB
Radiated Spurious Emission(30MHz~1GHz)	±5.1dB
Radiated Spurious Emission(1GHz~40GHz)	±5.2dB
Conducted Spurious Emission	±2.1dB
6dB Bandwidth	±5.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.5%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±7.6%
Power Spectral Density	±2.0dB
Duty Cycle	±3.5%

For 6E

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.2dB
Radiated Spurious Emission(9KHz~30MHz)	±3.5dB
Radiated Spurious Emission(30MHz~1GHz)	±5.1dB
Radiated Spurious Emission(1GHz~40GHz)	±5.2dB
6dB Bandwidth	±5.4%
26dB Bandwidth	±4.4%
Occupied Bandwidth	±4.5%
Peak Output Power (Conducted Power Meter)	±1.1dB
Power Spectral Density	±2.0dB
Duty Cycle	±3.5%
Frequency Stability	±0.23KHz



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	369	2025/02/17	2026/02/16
Active Loop Antenna	Schwarzbeck	FMZB 1513	00414	2025/02/18	2026/02/17
Horn Antenna	EMCO	3115	31589	2025/02/14	2026/02/13
Horn Antenna	EMCO	3116	31970	2025/02/20	2026/02/19
EMI Receiver	R&S	ESR 7	101906	2024/05/13	2025/05/12
Spectrum Analyzer	R&S	FSV 40-N	101329	2024/07/16	2025/07/15
Preamplifier	Agilent	8449B	3008A01954	2025/02/12	2026/02/11
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2024/10/15	2025/10/14
Preamplifier	EM Electronics corp.	EM330	60659	2024/12/16	2025/12/15
Cable-4m (9k-3G)	EMEC	RG-223	18274M	2024/08/08	2025/08/07
Cable-3in1 (30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2025/02/21	2026/02/20
Cable-0.5m (1G-40G)	HUBER SUHNER	SUCOFLEX 104	805443/4	2025/02/26	2026/02/25
Cable-3m (1G-40G)	HUBER SUHNER	SUCOFLEX 104	805796/4	2025/02/26	2026/02/25
Cable-8m (1G-26.5G)	WOKEN	WCBA-WCA203SM	CCE1374	2025/02/26	2026/02/25
Cable-3m (10M-40G)	HUBER SUHNER	SF102	804619/2	2024/10/14	2025/10/13
Cable-1m (10M-40G)	HUBER SUHNER	SF102	804398/2	2024/10/14	2025/10/13
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA
High Pass Filter	WOKEN	WFIL-H3000-18000F-03	WR377WC2B1	2024/10/15	2025/10/14
Notch Filter	Warison	WFIL-N5925-7125F-04	WRQ4BFWC4M1	2025/02/21	2026/02/20
Hipass Filter	Warison	WFIL-H7500-18000F	WRQ4BFWC2J1	2025/02/21	2026/02/20

Test Item	AC Power Line Conducted Emission				
Test Site	CON02-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	R&S	ESR 7	101906	2024/05/13	2025/05/12
Two-Line V-Network	R&S	ENV216	102185	2024/08/27	2025/08/26
LISN	Schwarzbeck	NSLK 8127	8127740	2024/08/27	2025/08/26
Cable-4m (9k-3G)	EMEC	RG-223	18274M	2024/08/08	2025/08/07
E3	AUDIX	v8.2014-8-6	RK-000536	NA	NA



4. Test of AC Power Line Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

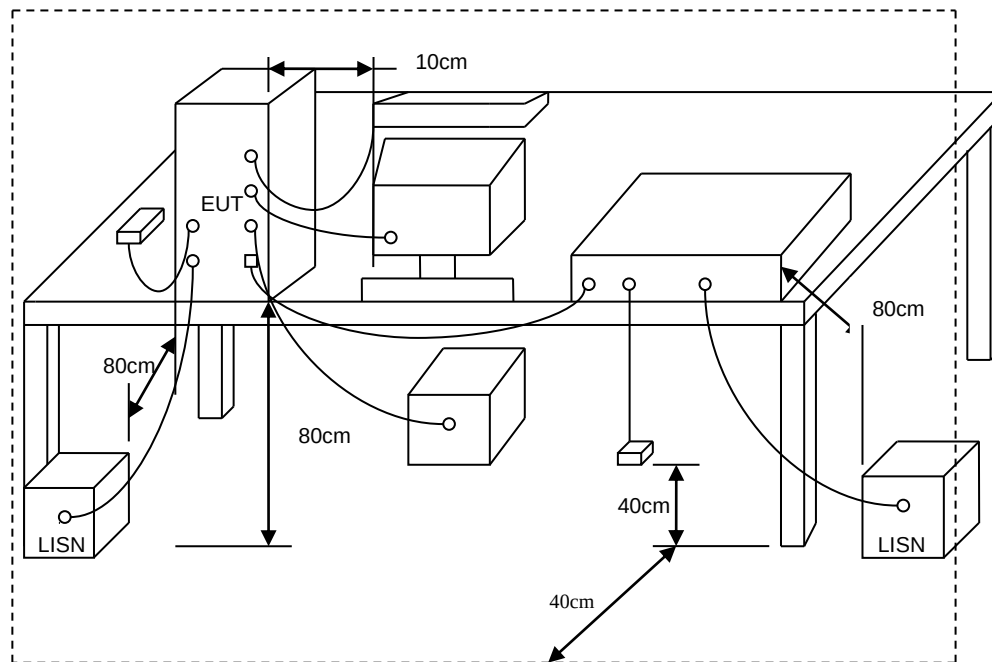
*Decreases with the logarithm of the frequency.

4.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

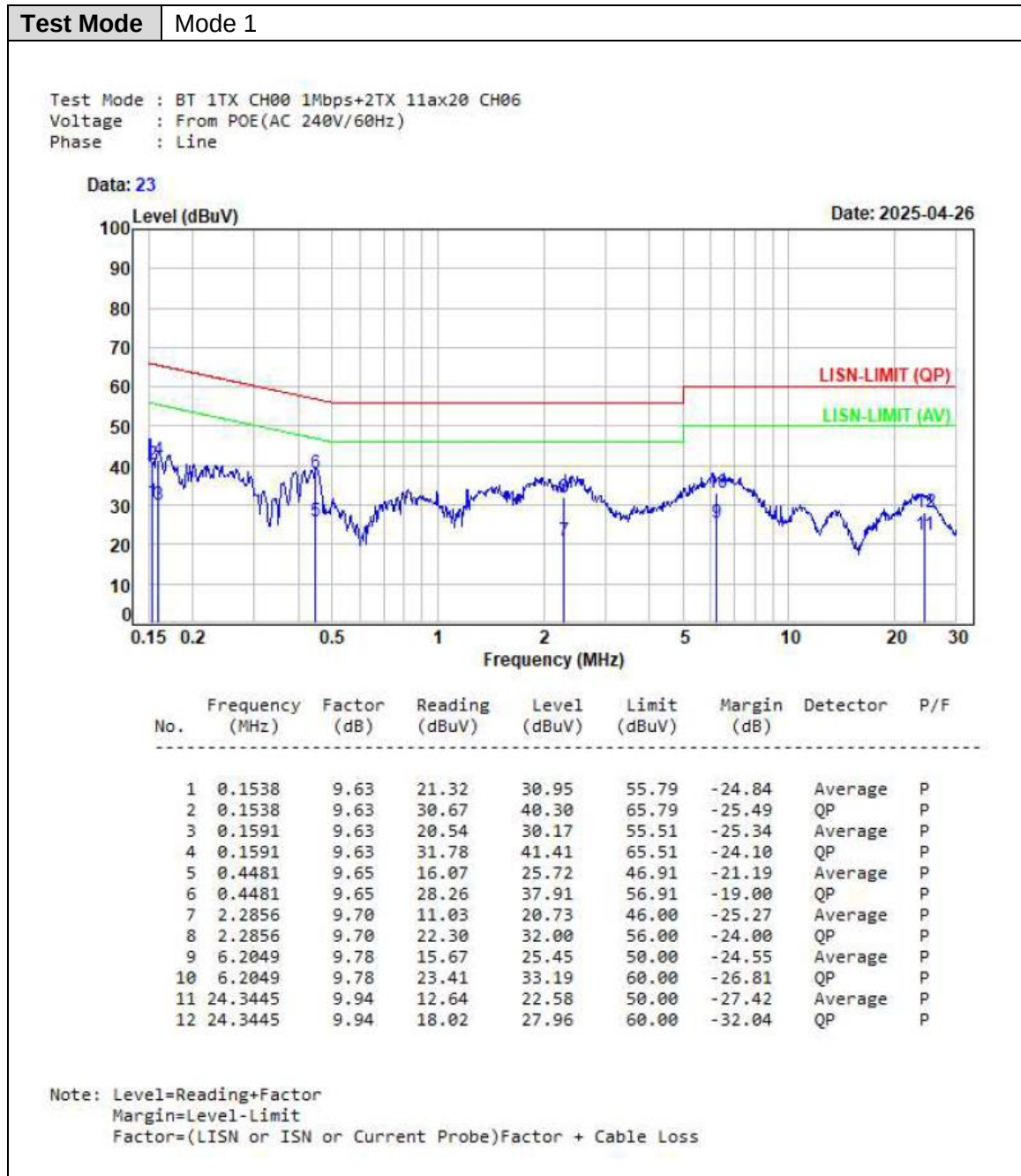


4.3 Typical Test Setup





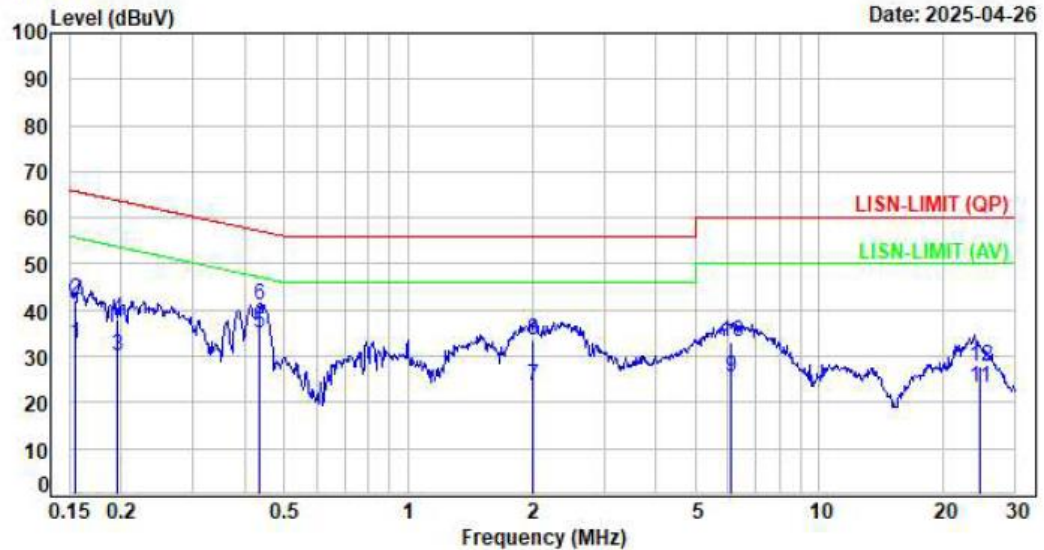
4.4 Test Result and Data



**Test Mode** Mode 1

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax20 CH06
Voltage : From POE(AC 240V/60Hz)
Phase : Neutral

Data: 24



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1554	9.61	23.06	32.67	55.70	-23.03	Average	P
2	0.1554	9.61	32.50	42.11	65.70	-23.59	QP	P
3	0.1955	9.61	20.41	30.02	53.80	-23.78	Average	P
4	0.1955	9.61	28.35	37.96	63.80	-25.84	QP	P
5	0.4345	9.62	25.33	34.95	47.17	-12.22	Average	P
6	0.4345	9.62	31.33	40.95	57.17	-16.22	QP	P
7	2.0195	9.68	13.81	23.49	46.00	-22.51	Average	P
8	2.0195	9.68	23.83	33.51	56.00	-22.49	QP	P
9	6.0834	9.76	15.73	25.49	50.00	-24.51	Average	P
10	6.0834	9.76	23.45	33.21	60.00	-26.79	QP	P
11	24.5007	10.05	13.02	23.07	50.00	-26.93	Average	P
12	24.5007	10.05	17.85	27.90	60.00	-32.10	QP	P

Note: Level=Reading+Factor

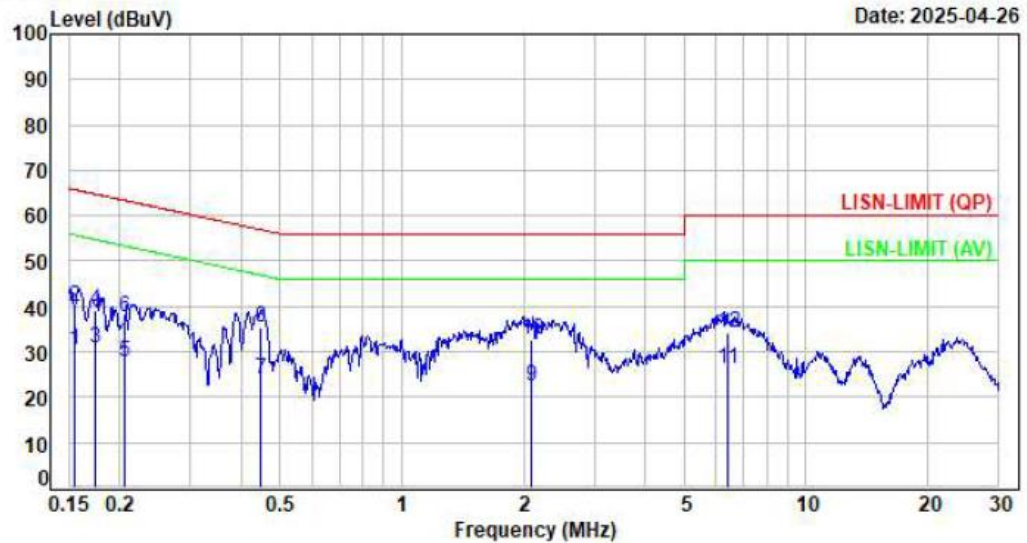
Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss

**Test Mode** Mode 2

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax20 CH52
Voltage : From POE(AC 240V/60Hz)
Phase : Line

Data: 27



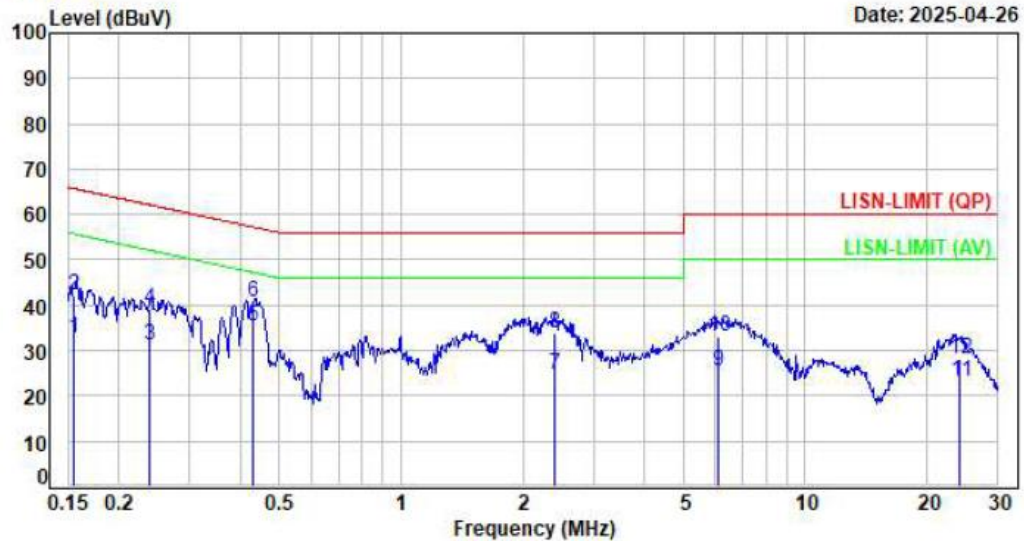
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1549	9.63	20.97	30.60	55.73	-25.13	Average	P
2	0.1549	9.63	30.45	40.08	65.73	-25.65	QP	P
3	0.1740	9.63	21.36	30.99	54.77	-23.78	Average	P
4	0.1740	9.63	29.69	39.32	64.77	-25.45	QP	P
5	0.2056	9.63	17.98	27.61	53.38	-25.77	Average	P
6	0.2056	9.63	28.00	37.63	63.38	-25.75	QP	P
7	0.4461	9.65	14.32	23.97	46.95	-22.98	Average	P
8	0.4461	9.65	25.71	35.36	56.95	-21.59	QP	P
9	2.0847	9.69	12.56	22.25	46.00	-23.75	Average	P
10	2.0847	9.69	23.10	32.79	56.00	-23.21	QP	P
11	6.3839	9.79	16.29	26.08	50.00	-23.92	Average	P
12	6.3839	9.79	24.36	34.15	60.00	-25.85	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss

**Test Mode** Mode 2

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax20 CH52
Voltage : From POE(AC 240V/60Hz)
Phase : Neutral

Data: 28

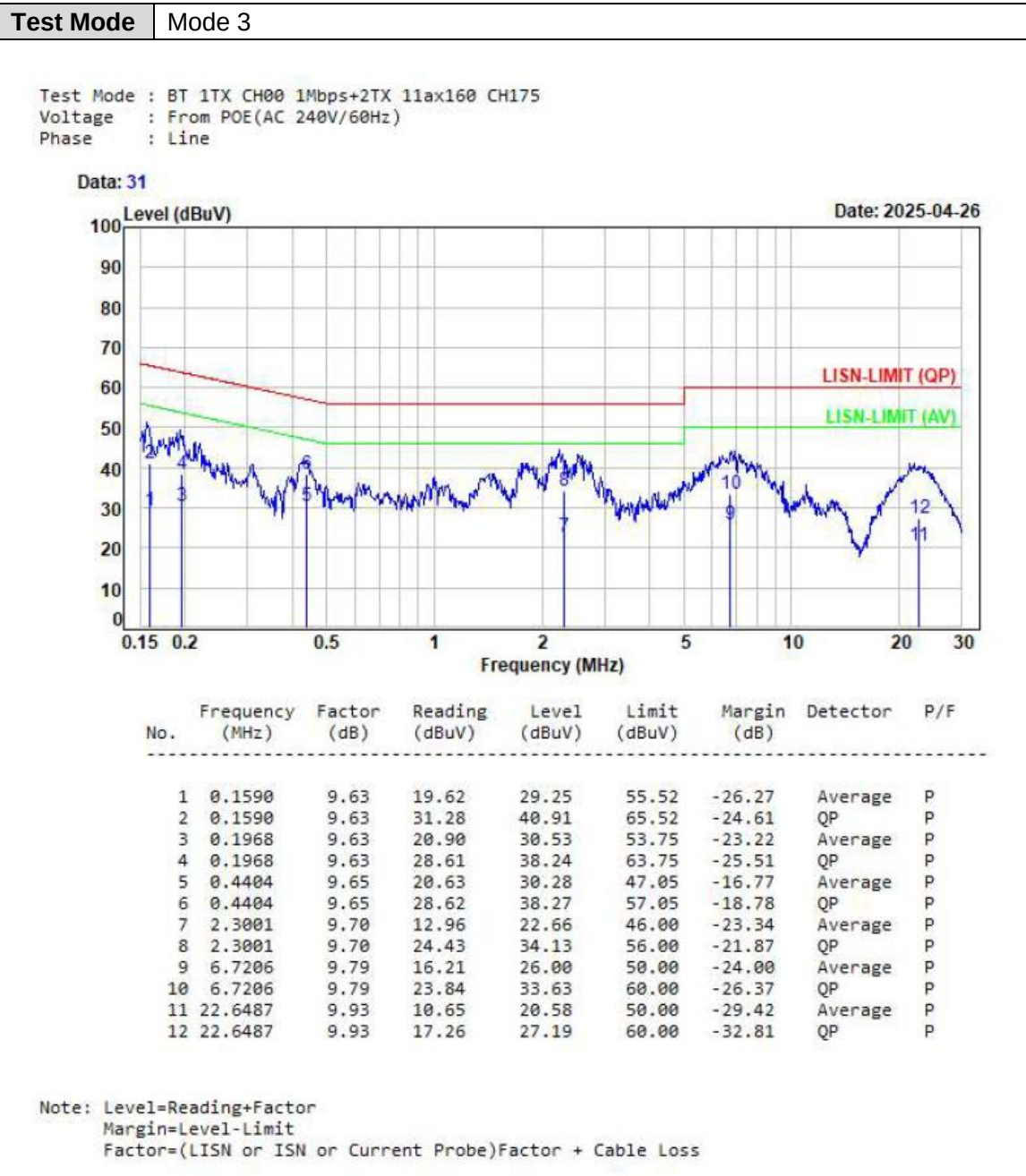


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1555	9.61	23.01	32.62	55.70	-23.08	Average	P
2	0.1555	9.61	32.48	42.09	65.70	-23.61	QP	P
3	0.2379	9.61	21.49	31.10	52.17	-21.07	Average	P
4	0.2379	9.61	29.53	39.14	62.17	-23.03	QP	P
5	0.4317	9.62	25.88	35.50	47.22	-11.72	Average	P
6	0.4317	9.62	31.04	40.66	57.22	-16.56	QP	P
7	2.3912	9.68	14.95	24.63	46.00	-21.37	Average	P
8	2.3912	9.68	24.30	33.98	56.00	-22.02	QP	P
9	6.0821	9.76	15.60	25.36	50.00	-24.64	Average	P
10	6.0821	9.76	23.43	33.19	60.00	-26.81	QP	P
11	24.1960	10.05	13.14	23.19	50.00	-26.81	Average	P
12	24.1960	10.05	18.19	28.24	60.00	-31.76	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

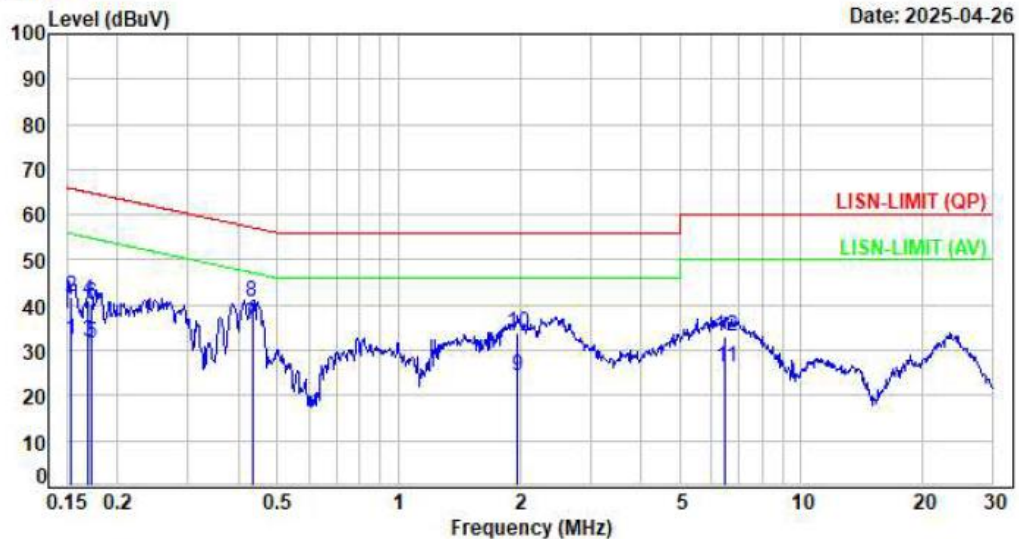
Factor=(LISM or ISN or Current Probe)Factor + Cable Loss



**Test Mode** Mode 3

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax160 CH175
Voltage : From POE(AC 240V/60Hz)
Phase : Neutral

Data: 32



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1533	9.61	22.85	32.46	55.82	-23.36	Average	P
2	0.1533	9.61	32.32	41.93	65.82	-23.89	QP	P
3	0.1691	9.61	22.39	32.00	55.00	-23.00	Average	P
4	0.1691	9.61	31.54	41.15	65.00	-23.85	QP	P
5	0.1724	9.61	21.83	31.44	54.84	-23.40	Average	P
6	0.1724	9.61	30.67	40.28	64.84	-24.56	QP	P
7	0.4322	9.62	25.95	35.57	47.21	-11.64	Average	P
8	0.4322	9.62	31.06	40.68	57.21	-16.53	QP	P
9	1.9773	9.67	14.84	24.51	46.00	-21.49	Average	P
10	1.9773	9.67	24.28	33.95	56.00	-22.05	QP	P
11	6.4925	9.77	16.48	26.25	50.00	-23.75	Average	P
12	6.4925	9.77	23.35	33.12	60.00	-26.88	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



5. Test of Spurious Emission (Radiated)

5.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3



5.2 Test Procedures

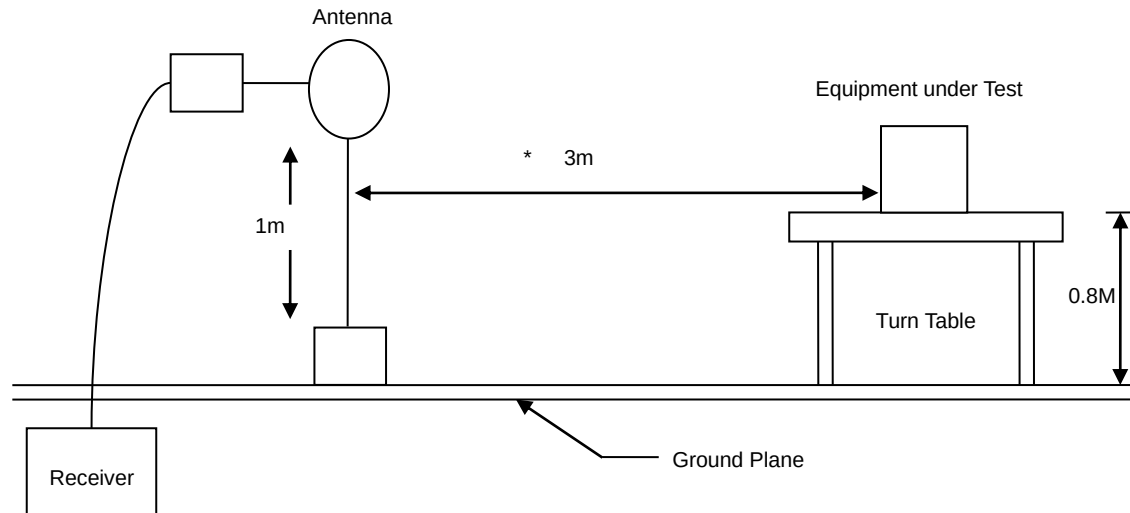
- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

Note: The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.
(Y-AXIS is the worst.)

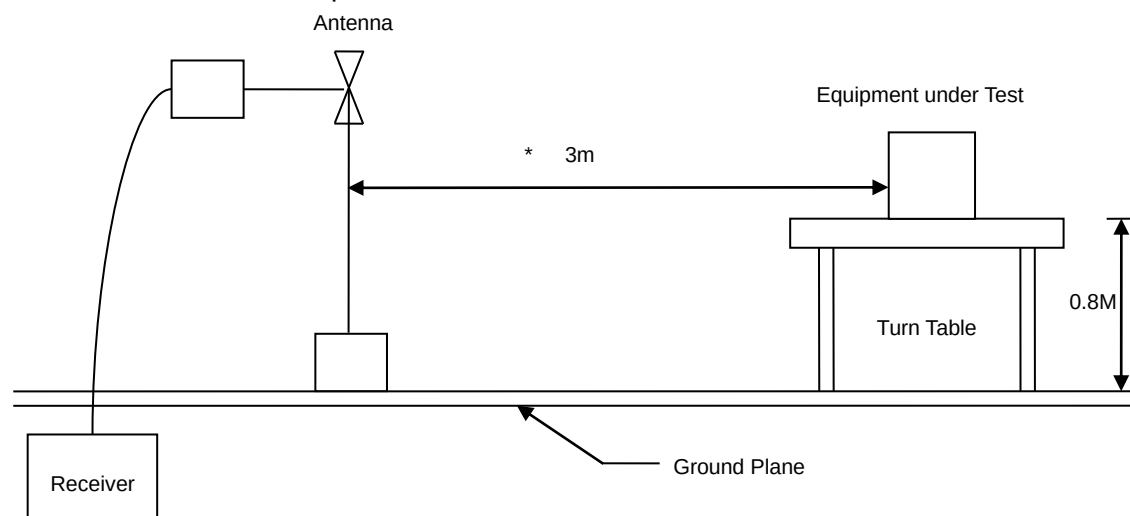


5.3 Typical Test Setup

Below 30MHz test setup

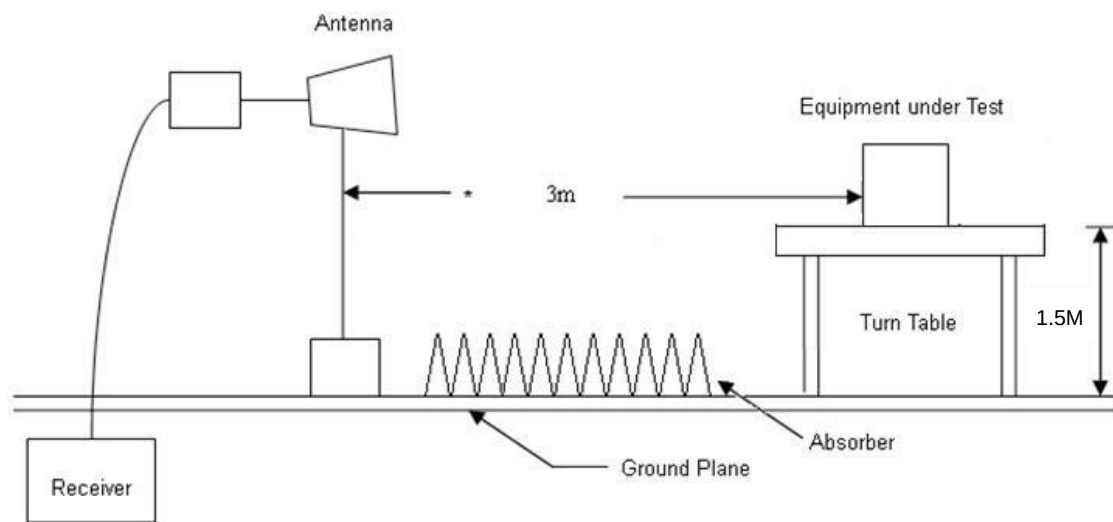


30MHz- 1GHz Test Setup





Above 1GHz Test Setup

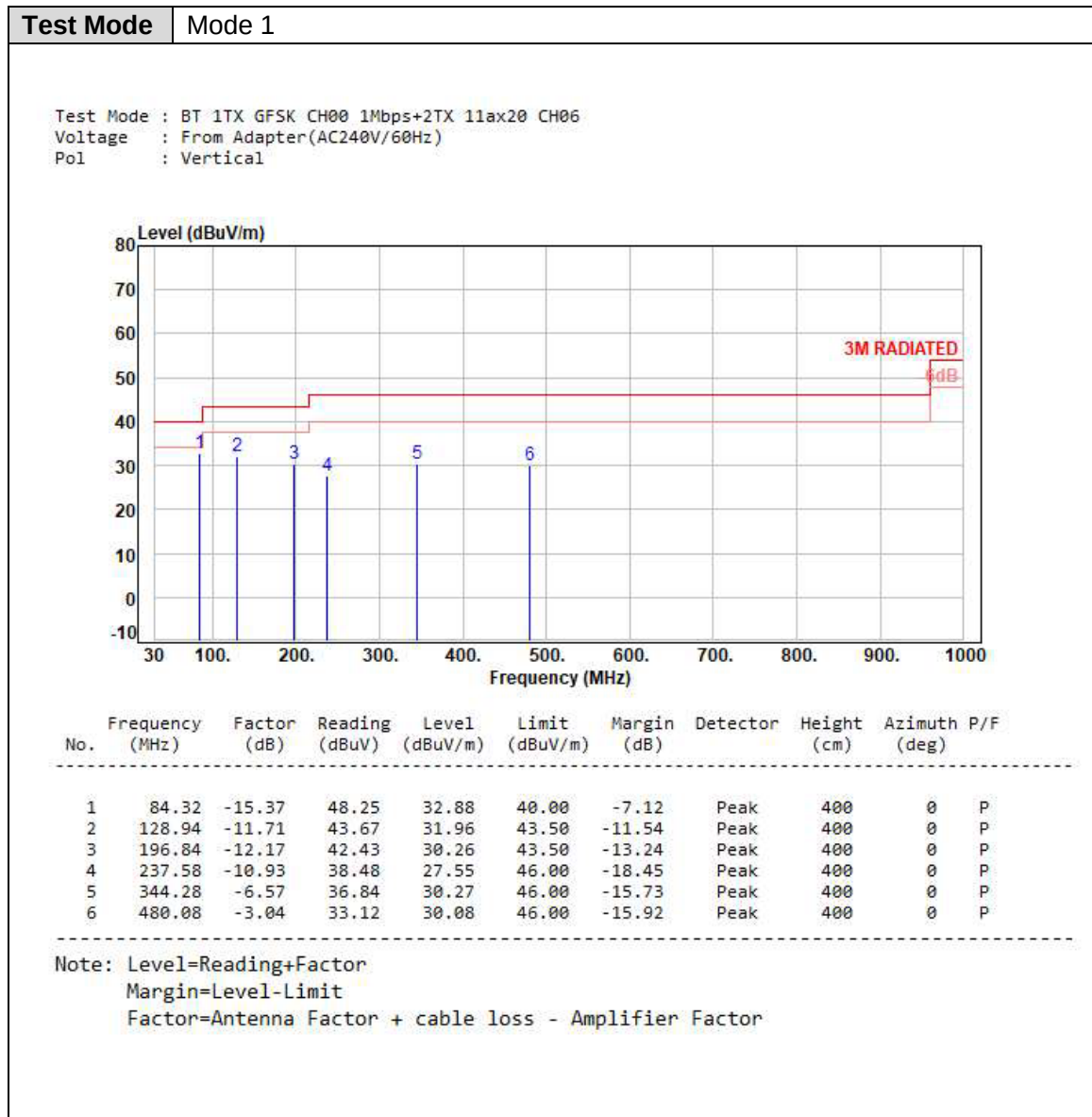


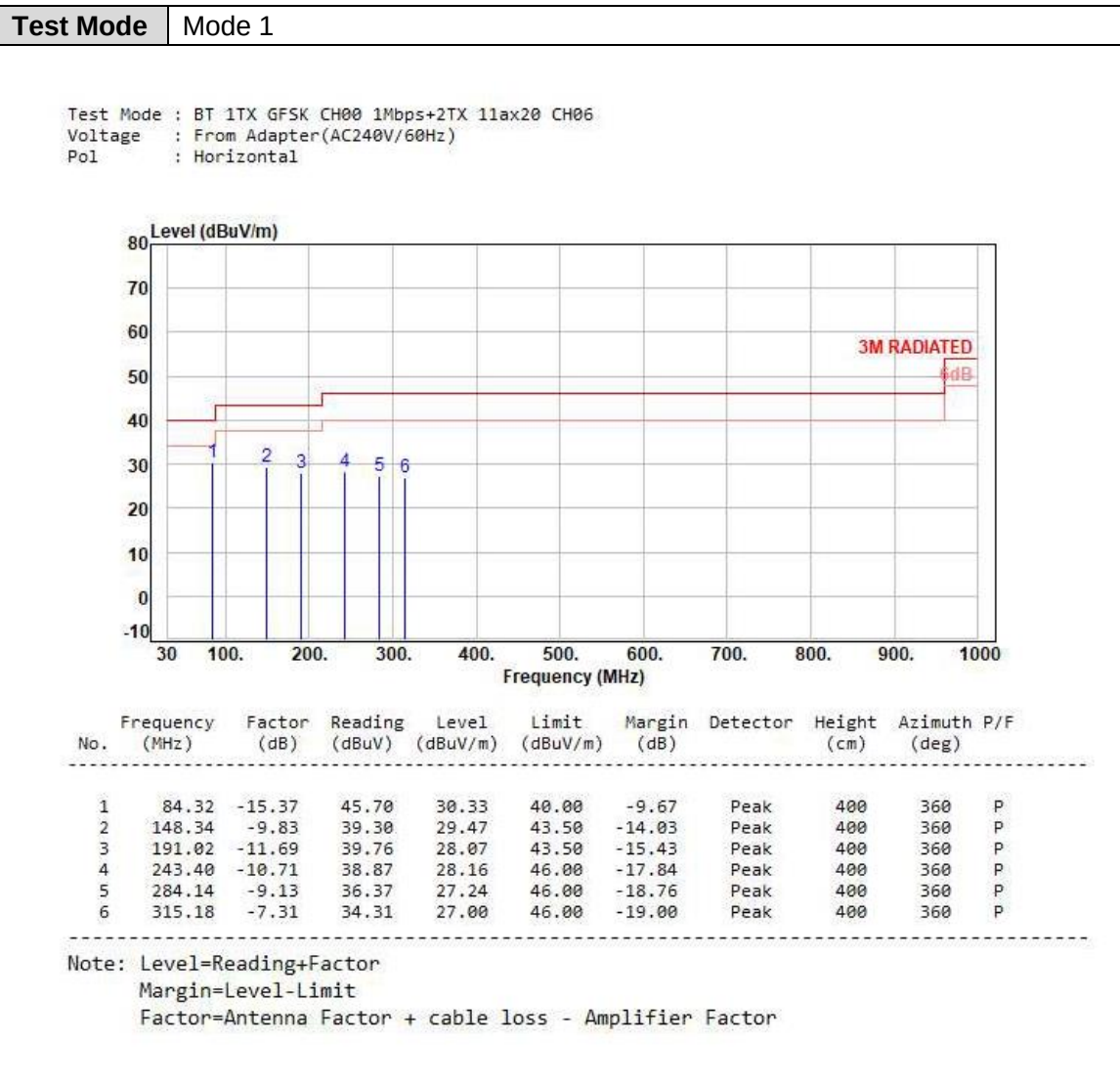


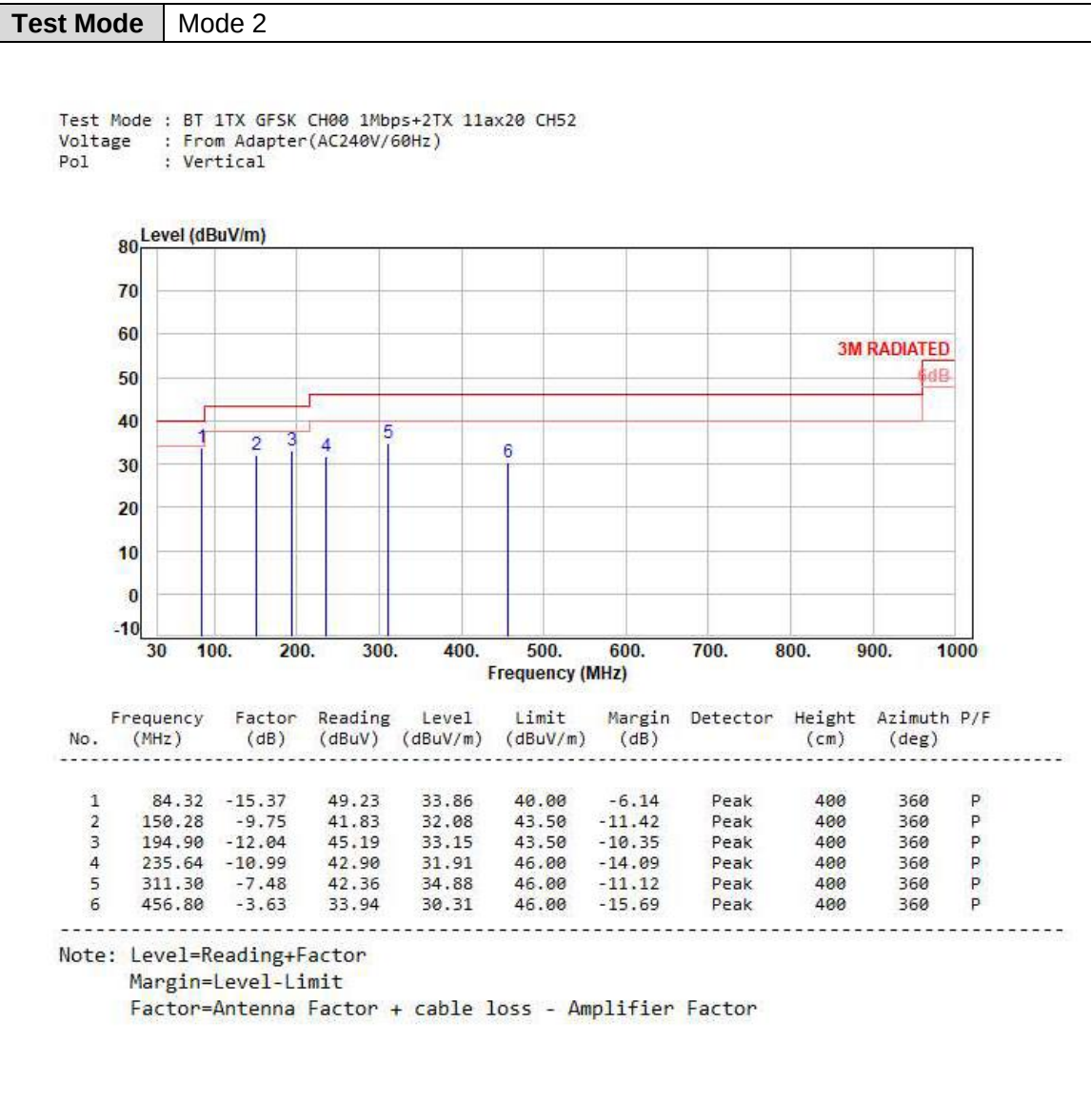
5.4 Test Result and Data (9kHz ~ 30MHz)

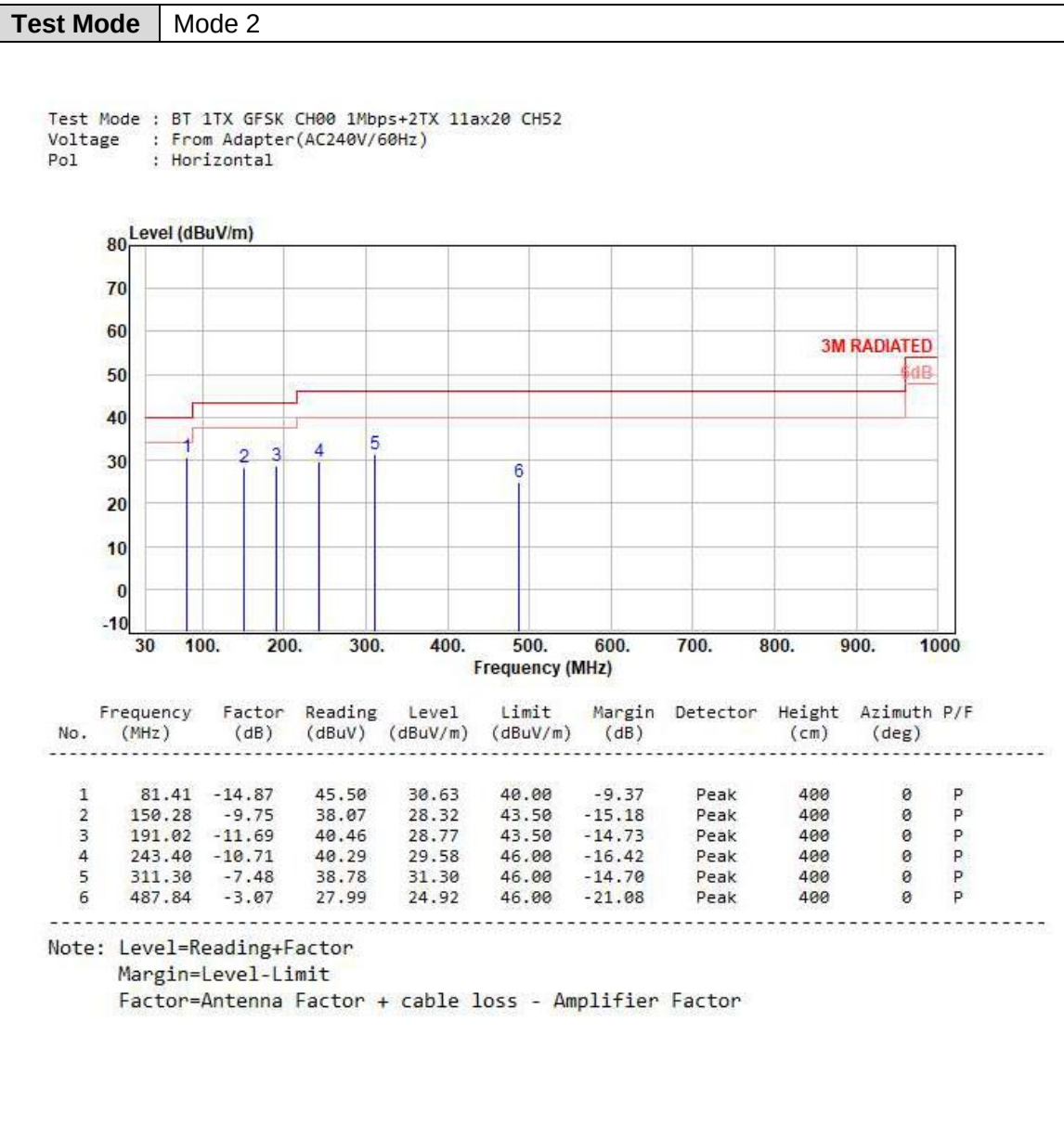
The 9kHz - 30MHz spurious emission is under limit 20dB more.

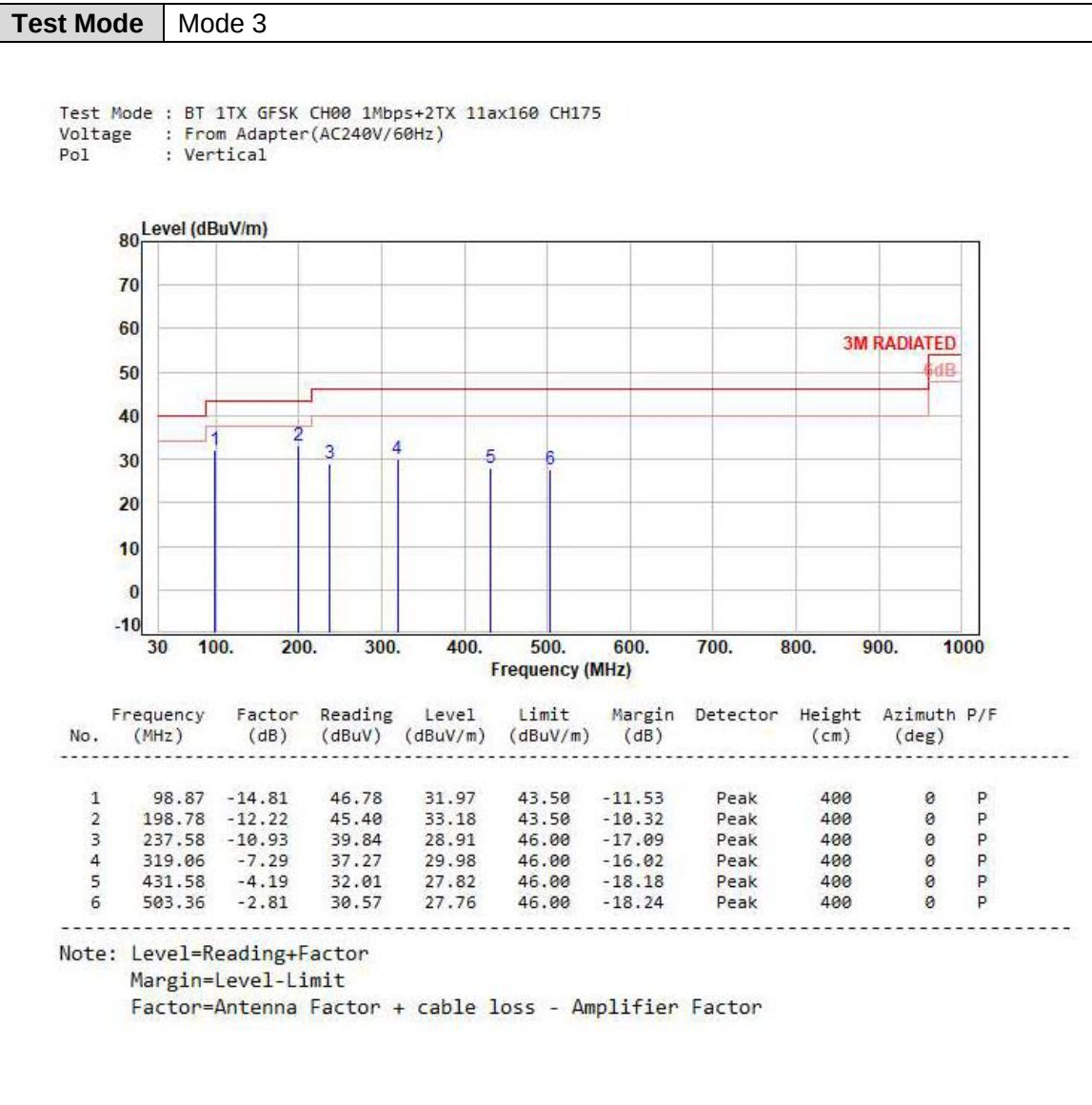
5.5 Test Result and Data (30MHz ~ 1GHz)





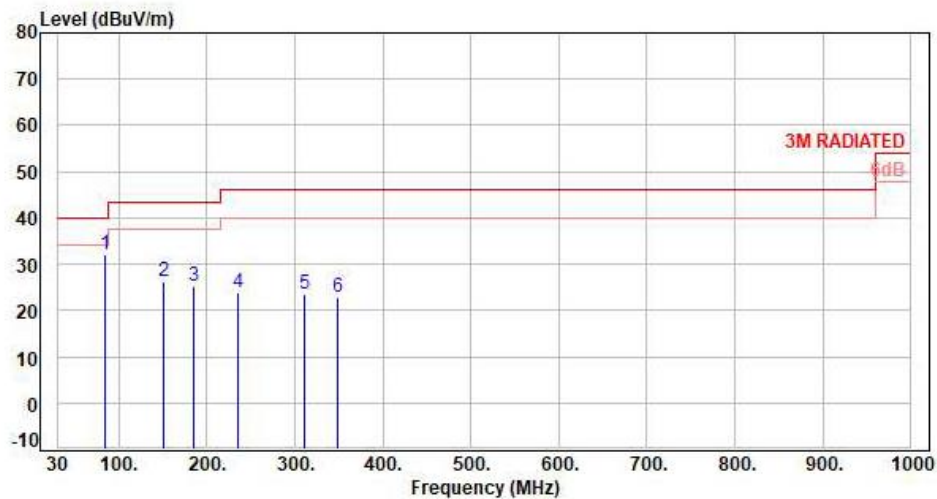






**Test Mode** Mode 3

Test Mode : BT 1TX GFSK CH00 1Mbps+2TX 11ax160 CH175
Voltage : From Adapter(AC240V/60Hz)
Pol : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	84.32	-15.37	47.44	32.07	40.00	-7.93	Peak	400	360	P
2	150.28	-9.75	35.92	26.17	43.50	-17.33	Peak	400	360	P
3	185.20	-11.24	36.56	25.32	43.50	-18.18	Peak	400	360	P
4	235.64	-10.99	34.88	23.89	46.00	-22.11	Peak	400	360	P
5	311.30	-7.48	31.13	23.65	46.00	-22.35	Peak	400	360	P
6	348.16	-6.55	29.42	22.87	46.00	-23.13	Peak	400	360	P

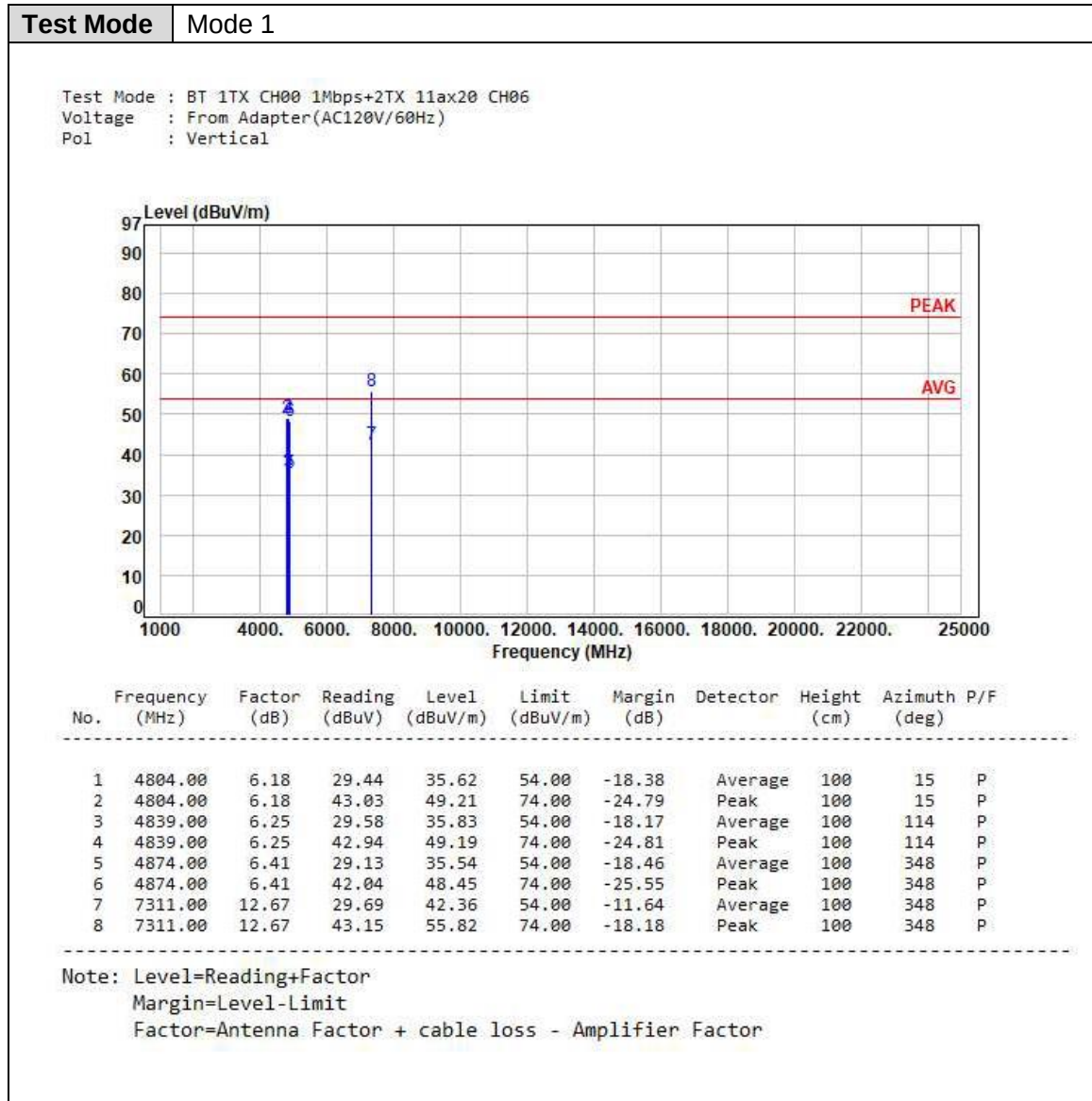
Note: Level=Reading+Factor

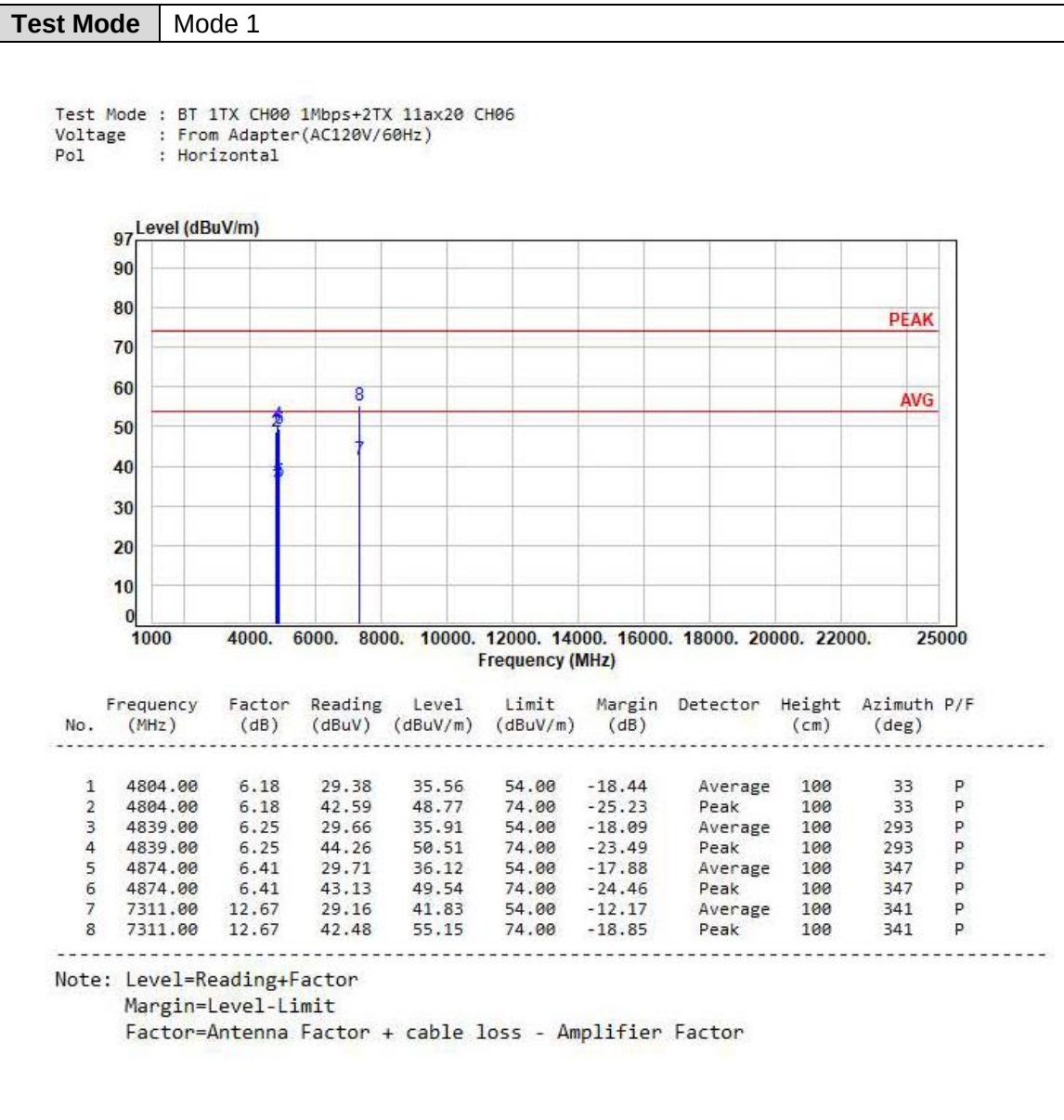
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



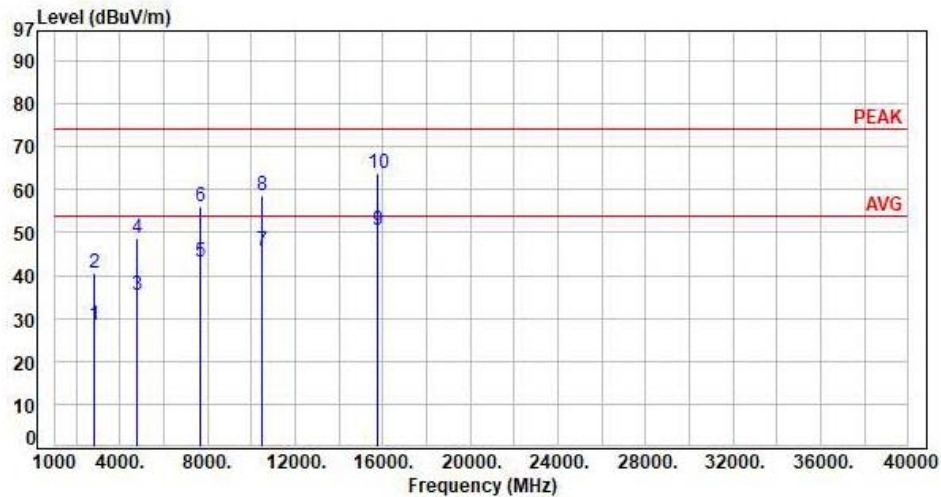
5.6 Test Result and Data (1GHz ~ 40GHz)





**Test Mode** Mode 2

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax20 CH52
Voltage : From Adapter(AC120V/60Hz)
Pol : Vertical



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2858.00	-1.40	29.82	28.42	54.00	-25.58	Average	100	105	P
2	2858.00	-1.40	41.92	40.52	74.00	-33.48	Peak	100	105	P
3	4804.00	6.18	29.39	35.57	54.00	-18.43	Average	100	349	P
4	4804.00	6.18	42.49	48.67	74.00	-25.33	Peak	100	349	P
5	7662.00	12.96	30.16	43.12	54.00	-10.88	Average	100	282	P
6	7662.00	12.96	43.28	56.24	74.00	-17.76	Peak	100	282	P
7	10520.00	15.39	30.48	45.87	54.00	-8.13	Average	100	311	P
8	10520.00	15.39	43.11	58.50	74.00	-15.50	Peak	100	311	P
9	15780.00	19.20	31.49	50.69	54.00	-3.31	Average	100	71	P
10	15780.00	19.20	44.58	63.78	74.00	-10.22	Peak	100	71	P

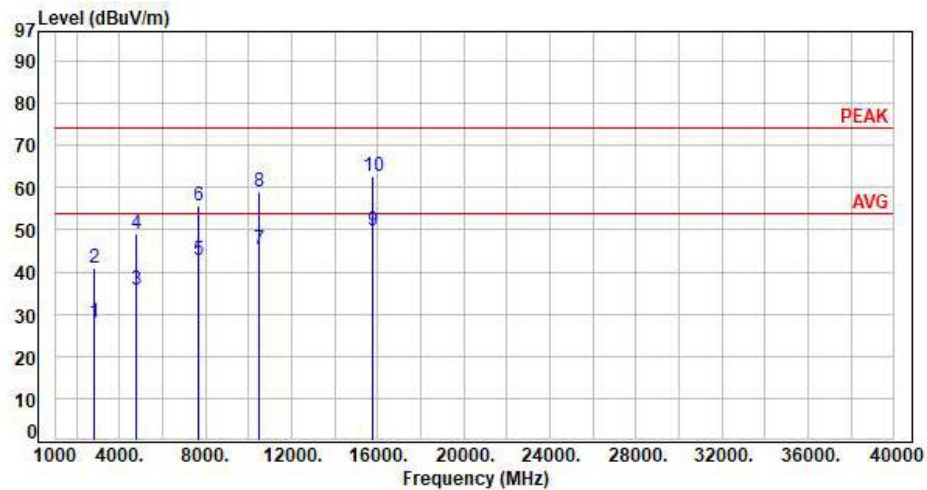
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor

**Test Mode** Mode 2

Test Mode : BT 1TX CH00 1Mbps+2TX 11ax20 CH52
Voltage : From Adapter(AC120V/60Hz)
Pol : Horizontal



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2858.00	-1.40	29.47	28.07	54.00	-25.93	Average	100	111	P
2	2858.00	-1.40	42.48	41.08	74.00	-32.92	Peak	100	111	P
3	4804.00	6.18	29.64	35.82	54.00	-18.18	Average	100	294	P
4	4804.00	6.18	42.86	49.04	74.00	-24.96	Peak	100	294	P
5	7662.00	12.96	29.92	42.88	54.00	-11.12	Average	100	348	P
6	7662.00	12.96	42.83	55.79	74.00	-18.21	Peak	100	348	P
7	10520.00	15.39	29.95	45.34	54.00	-8.66	Average	100	28	P
8	10520.00	15.39	43.51	58.90	74.00	-15.10	Peak	100	28	P
9	15780.00	19.20	30.61	49.81	54.00	-4.19	Average	100	121	P
10	15780.00	19.20	43.65	62.85	74.00	-11.15	Peak	100	121	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor

