

FCC PART 15.247

TEST REPORT

For

Beijing InHand Networks Technology Co., Ltd.

Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing

Tested Model: IR302
FCC ID: 2AANYIR3

Report Type: Class II Permissive Change		Product Name: Industrial Cellular Router
Report Number:	RSC200827002-0B	
Date of Report Issue:	2020-09-16	
Reviewed By:	Sula Huang	
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RSC200618001-0B	Original Report	2020-07-14
1	RSC200827002-0B	CIIPC Report	2020-09-17

Note: This report was the CIIPC report, which was identical to the previously certified except for the changes as below for details.

1. Changing LTE module, Original LTE module: EG91-NAX (FCC ID: XMR201909EG91NAX), Current LTE Module: BG95-M3 (FCC ID: XMR201910BG95M3).
2. Removing LTE AUX antenna

Base on above changes, additional co-location was done and MPE was updated, other data was referred to the report number RSC200618001-0B.

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Beijing InHand Networks Technology Co., Ltd.
Product	Industrial Cellular Router
Tested Model	IR302
Multiple Models	IR312, IR332, IR352, IR362, IR392, IR301, IR311, IR331, IR351, IR361, IR391
FCC ID	2AANYIR3
Radio Mode	Wi-Fi
Frequency	2412-2462MHz (802.11b/g/n20) 2422-2452MHz (802.11n40)
Modulation Type	802.11b: DSSS 802.11g/n20/n40: OFDM
Voltage Range	DC 9-36V (Typical:12V) from adapter
Measure approximately	90 mm (L) x 90 mm (W) x 25 mm (H)
Sample serial number	200827002/01 (assigned by the BACL, Chengdu)
Sample/EUT Status	The test sample was in good condition and received: 2020-08-27

Note: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Objective

This report is prepared on behalf of **Beijing InHand Networks Technology Co., Ltd.** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

No

Measurement Uncertainty

Item			Uncertainty
AC power line conducted emission			2.48 dB
Radiated Emission(Field Strength)	30MHz-200MHz	H	4.31 dB
		V	4.57 dB
	200MHz-1GHz	H	4.68 dB
		V	5.78 dB
	1GHz-6GHz		4.56 dB
	6GHz-18GHz		4.57 dB
	18GHz-40GHz		5.44 dB

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the corresponding inclusion factor K when the inclusion probability is about 95%.

Test Methodology

All measurements contained in this report were conducted with:

1. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
2. KDB558074 D01 DTS Meas Guidance v05r02.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Bay Area Compliance Laboratories Corp. (Chengdu) lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4324.01) and the FCC designation No. CN1186 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured in testing mode, which was provided by manufacturer.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

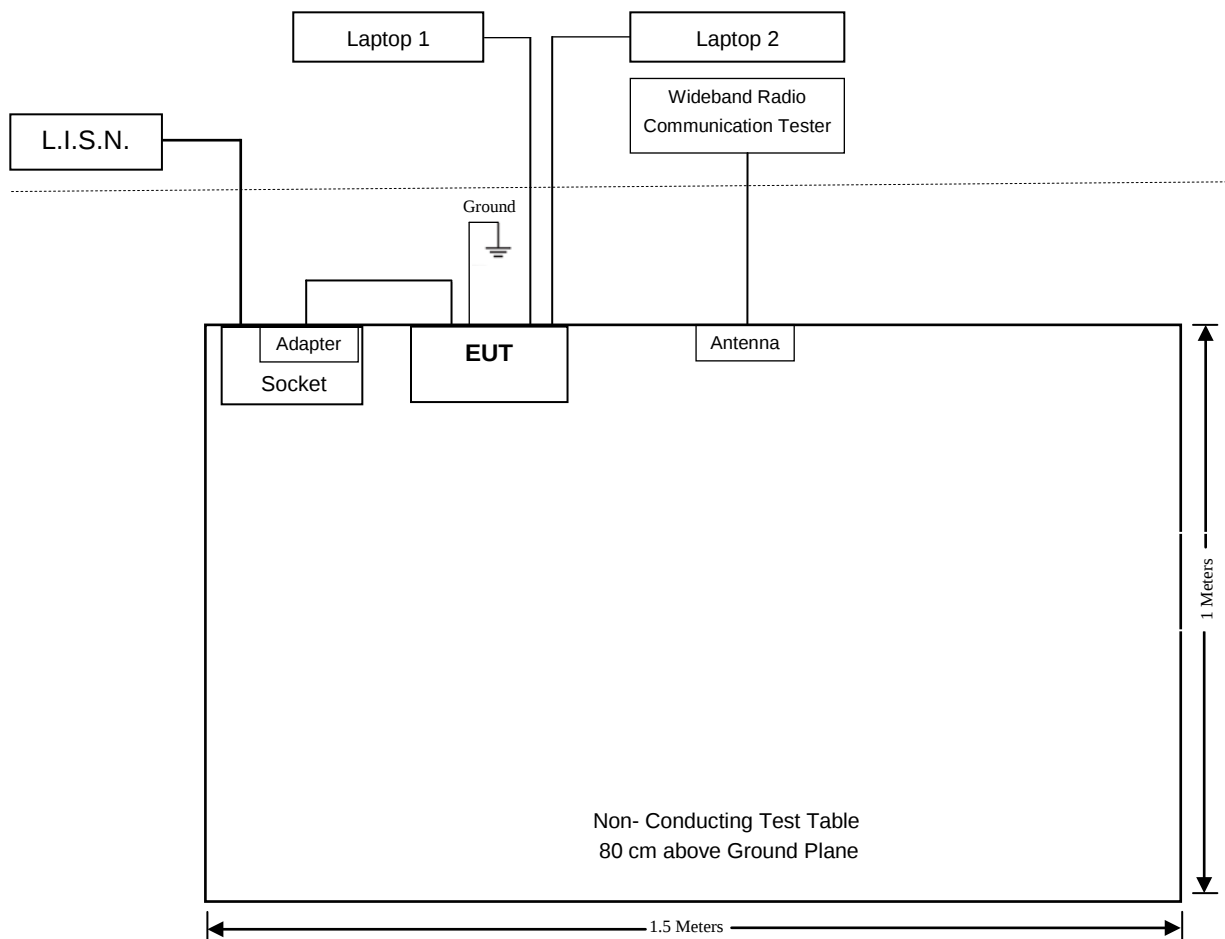
Manufacturer	Description	Model	Serial Number
DELL	Laptop 1	Latitude E5430	BTXWLX1
DELL	Laptop 2	Latitude E5430	285RLX1
KUANTEN	Adapter	KT10W120100CHD	Unknown
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	11-9435686-0111
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	104788
Rohde & Schwarz	Functional Radio Communication Tester	CMW290	101743
Beijing InHand	Antenna	Unknown	Unknown

External I/O Cable

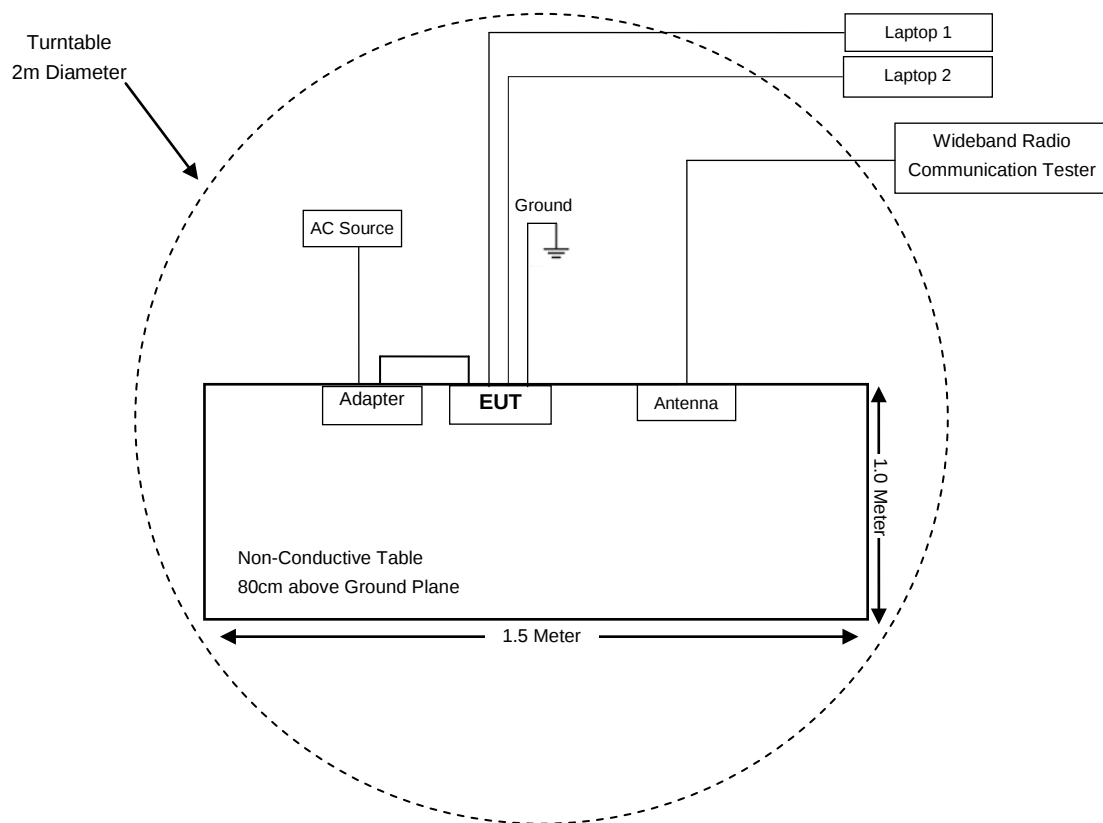
Cable Description	Length (m)	From	To
Conducted Emissions			
Unshielded DC Power Cable	1.0	Adapter	EUT
Unshielded Ethernet Cable	3.0	EUT	Laptop 1
Unshielded Ethernet Cable	3.0	EUT	Laptop 2
Raidated Emissions			
Unshielded DC Power Cable	1.0	Adapter	EUT
Unshielded Ethernet Cable	10.0	EUT	Laptop 1
Unshielded Ethernet Cable	10.0	EUT	Laptop 2

Block Diagram of Test Setup

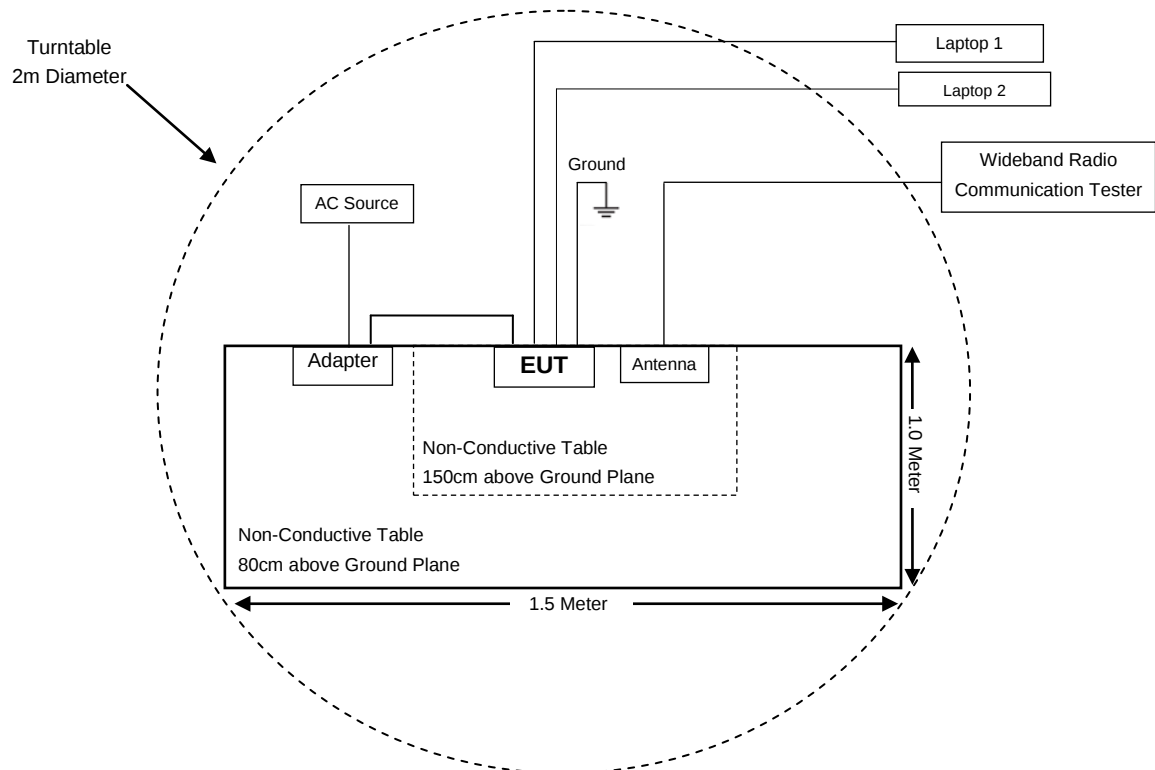
For Conducted Emissions:



For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 & §1.1310 & §2.1091	Maximum Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions(Single)	Compliance [♦]
§15.205, §15.209, §15.247(d)	Spurious Emissions (Co-location)	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance [♦]
§15.247(b)(3)	Maximum conducted output power	Compliance [♦]
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance [♦]
§15.247(e)	Power Spectral Density	Compliance [♦]

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Compliance[♦]: Refer to the certified product, FCC ID: 2AANYIR3, Report No.:RSC200618001-0B, Issuance Date: 2020-07-17.

TEST EQUIPMENTS LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission					
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2020-04-13	2021-04-12
ROHDE&SCHWARZ	L.I.S.N.	ENV216	3560.6550.16	2020-01-13	2021-01-12
HP	RF Limiter	11947A	3107A01270	2020-08-13	2021-08-12
Unknown	Conducted Cable	L-E-003	000003	2020-08-04	2021-08-03
Rohde & Schwarz	EMC32	EMC32	V 8.52.0	NCR	NCR
Radiated Emission					
EMCT	Semi-Anechoic Chamber	966	001	2017-05-18	2022-05-17
SONOMA INSTRUMENT	Amplifier	310 N	186684	2020-08-10	2021-08-09
SUNOL SCIENCES	Broadband Antenna	JB3	A121808	2019-12-10	2022-12-09
INMET	Attenuator	18N-6dB	Unknown	2019-12-10	2022-12-09
Rohde & Schwarz	EMI Test Receiver	ESR3	102456	2020-04-13	2021-04-12
Unknown	RF Cable (Below 1GHz)	L-E-005	000005	2019-09-06	2020-09-05
Unknown	RF Cable (Below 1GHz)	T-E128	000128	2019-10-17	2020-10-16
Unknown	RF Cable (Below 1GHz)	T-E237	233522-001	2020-07-17	2021-07-16
Rohde & Schwarz	Spectrum Analyzer	FSU26	200835	2020-04-13	2021-04-12
EMCO	Horn Antenna	3115	2192	2019-09-25	2021-09-24
Mini-circuits	Pre-Amplifier	ZVA-183-S+	771001215	2019-09-20	2020-09-19
EM Electronics	Pre-Amplifier	EM18G40	060725	2020-07-23	2021-07-22
A.H. Systems, Inc	Horn Antenna	SAS-574	510	2019-09-02	2021-09-01
MICRO-TRONICS	2.4GHz Notch Filter	BRM50702	G396	2020-02-22	2021-02-21
IW-MICROWAVE	RF Cable (Above 1GHz)	L-E-010	N/A	2020-08-31	2021-08-30
SUHNER+HUBER	RF Cable (Above 1GHz)	L-E-007	93533/4PE	2020-05-18	2021-05-17
SUHNER+HUBER	RF Cable (Above 18GHz)	T-E222	2551/2	2020-07-18	2021-07-17
FLORIDA RF LABS	RF Cable (Above 18GHz)	T-E210	1042	2020-07-18	2021-07-17
Rohde & Schwarz	EMC32	EMC32	V9.10.00	NCR	NCR

FCC §15.247 & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE

Applicable Standard

According to subpart 15.247 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Per 447498 D01 General RF Exposure Guidance v06, simultaneous transmission MPE test exclusion applies when the sum of the MPE for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

WiFi +LTE module (FCC ID: XMR201910BG95M3, Date of Grant: 2019-10-17)

MPE evaluation for single transmission:

Radio Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)	Ratio
		(dBi)	(numeric)	(dBm)	(mW)				
WLAN	2412-2462	2.0	1.58	22.50	177.83	20	0.056	1.0	0.056
GSM850	824-849	2.0	1.58	25.97	395.37	20	0.124	0.55	0.226
PCS1900	1850-1910	2.0	1.58	22.97	198.15	20	0.062	1.0	0.062
LTE Band 2	1850-1910	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
LTE Band 4	1710-1755	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
LTE Band 5	824-849	2.0	1.58	22.0	158.49	20	0.050	0.55	0.091
LTE Band 12	699-716	2.0	1.58	22.0	158.49	20	0.050	0.47	0.106
LTE Band 13	777-787	2.0	1.58	22.0	158.49	20	0.050	0.52	0.096
LTE Band 14	788-798	2.0	1.58	22.0	158.49	20	0.050	0.53	0.094
LTE Band 25	1850-1915	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
LTE Band 26	814-849	2.0	1.58	22.0	158.49	20	0.050	0.54	0.092
LTE Band 66	1710-1780	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
LTE Band 85	698-716	2.0	1.58	22.0	158.49	20	0.050	0.47	0.106
NB-IOT band 2	1850-1910	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
NB-IOT band 4	1710-1755	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
NB-IOT band 5	824-849	2.0	1.58	22.0	158.49	20	0.050	0.55	0.091
NB-IOT band 12	699-716	2.0	1.58	22.0	158.49	20	0.050	0.47	0.106
NB-IOT band 13	777-787	2.0	1.58	22.0	158.49	20	0.050	0.52	0.096
NB-IOT band 25	1850-1915	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
NB-IOT band 26	814-849	2.0	1.58	22.0	158.49	20	0.050	0.54	0.092
NB-IOT band 66	1710-1780	2.0	1.58	22.0	158.49	20	0.050	1.0	0.050
NB-IOT band 71	663-698	2.0	1.58	22.0	158.49	20	0.050	0.44	0.113
NB-IOT band 85	698-716	2.0	1.58	22.0	158.49	20	0.050	0.47	0.106

MPE evaluation for simultaneous transmission:

Note: WLAN, WWAN can transmit simultaneously, MPE evaluation is as below formula:

$PD1/Limit1 + PD2/Limit2 + \dots < 1$, PD (Power Density)

The worst case is as below:

MPE of WLAN + MPE of WWAN = $0.056/1.0 + 0.124/0.55 = 0.282 < 1.0$

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has one Wi-Fi antenna and one LTE antenna, which fulfill the requirement of this section. Please refer to the table below and EUT photos.

Mode	Manufacturer	Model Number	Antenna Gain (Max)	Impedance (Ohm)	Antenna Connector	Antenna Type
Wi-Fi	SHENZHEN GUYOU TECHNOLOGY CO.LTD	GY-XPf-BBL2-GJA11	2.0dBi	50	Reverse SMA male	Monopole
LTE	SHENZHEN GUYOU TECHNOLOGY CO.LTD	GY-XPL-BBL2-AJA11	2.0dBi	50	SMA(Male)	Monopole

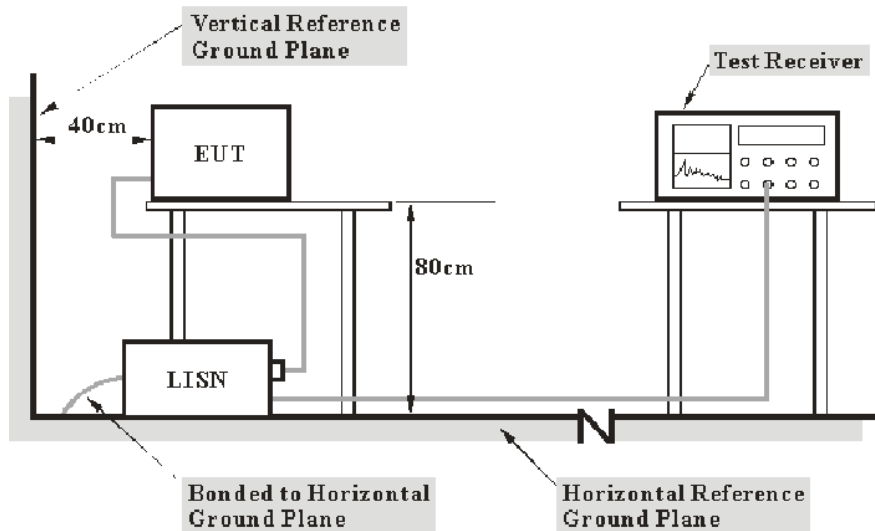
Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

EUT Setup



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

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the first L.I.S.N.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

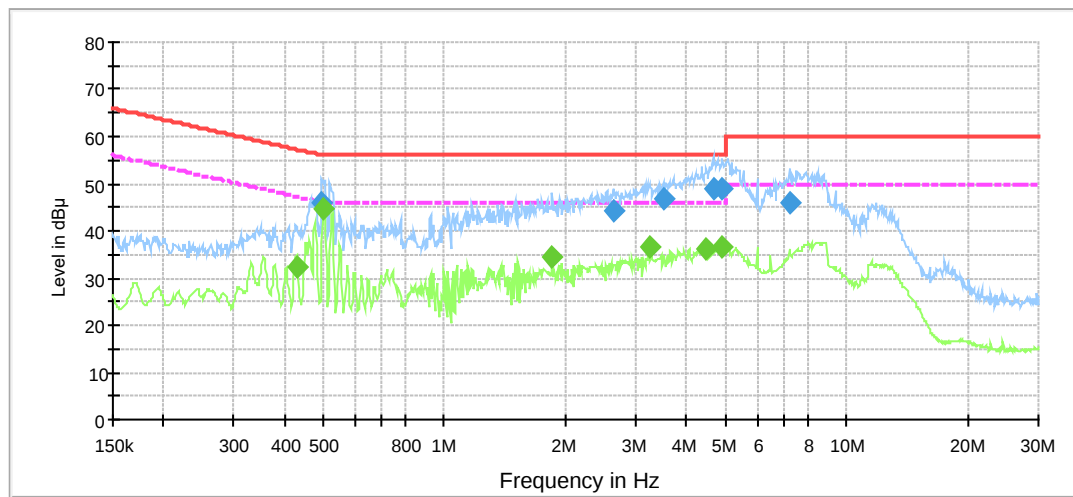
Test Environment Conditions

Temperature:	28 °C
Relative Humidity:	55 %
ATM Pressure:	95.7kPa

The testing was performed by Winfred Wang on 2020-09-04.

Test Mode: Transmitting (WLAN+WWAN)-Worst case

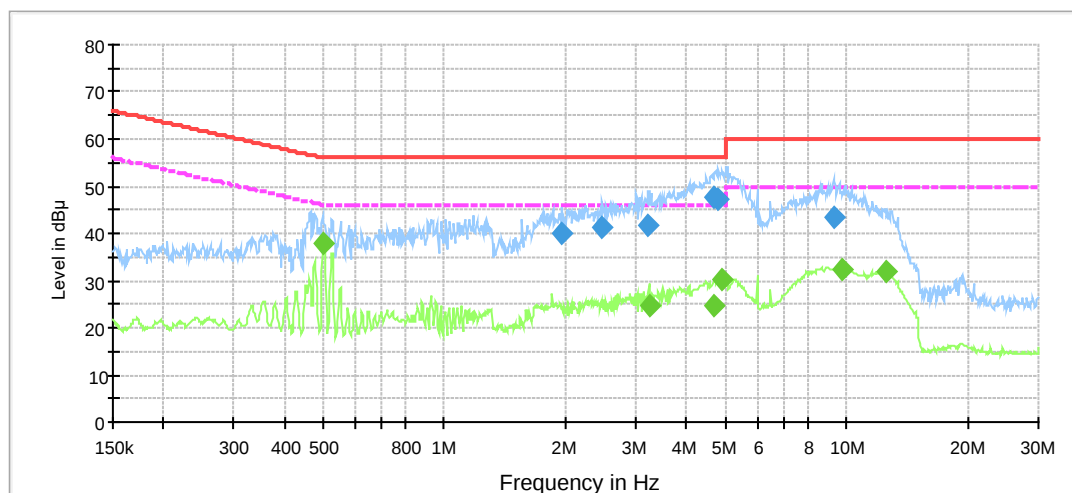
AC120V/60Hz, Line:



Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.496531	46.0	200.0	9.000	L1	19.7	10.1	56.1
2.626703	44.4	200.0	9.000	L1	19.6	11.6	56.0
3.507863	46.7	200.0	9.000	L1	19.6	9.3	56.0
4.661311	49.1	200.0	9.000	L1	19.6	6.9	56.0
4.899691	49.0	200.0	9.000	L1	19.6	7.0	56.0
7.229721	45.9	200.0	9.000	L1	19.6	14.1	60.0

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.429666	32.5	200.0	9.000	L1	19.7	14.8	47.3
0.501509	44.7	200.0	9.000	L1	19.7	1.3	46.0
1.852621	34.3	200.0	9.000	L1	19.6	11.7	46.0
3.238811	36.6	200.0	9.000	L1	19.6	9.4	46.0
4.478985	36.1	200.0	9.000	L1	19.6	9.9	46.0
4.899691	36.4	200.0	9.000	L1	19.6	9.6	46.0

AC120V/60Hz, Neutral:



Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
1.966887	40.1	200.0	9.000	N	19.6	15.9	56.0
2.474106	41.1	200.0	9.000	N	19.6	14.9	56.0
3.222697	41.7	200.0	9.000	N	19.6	14.3	56.0
4.684618	47.8	200.0	9.000	N	19.6	8.2	56.0
4.802910	47.3	200.0	9.000	N	19.6	8.7	56.0
9.277365	43.3	200.0	9.000	N	19.7	16.7	60.0

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.501509	37.7	200.0	9.000	N	19.7	8.3	46.0
3.238811	24.7	200.0	9.000	N	19.6	21.3	46.0
4.684618	24.6	200.0	9.000	N	19.6	21.4	46.0
4.899691	30.1	200.0	9.000	N	19.6	15.9	46.0
9.751810	32.5	200.0	9.000	N	19.7	17.5	50.0
12.513775	32.1	200.0	9.000	N	19.8	17.9	50.0

Note:

- 1) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude

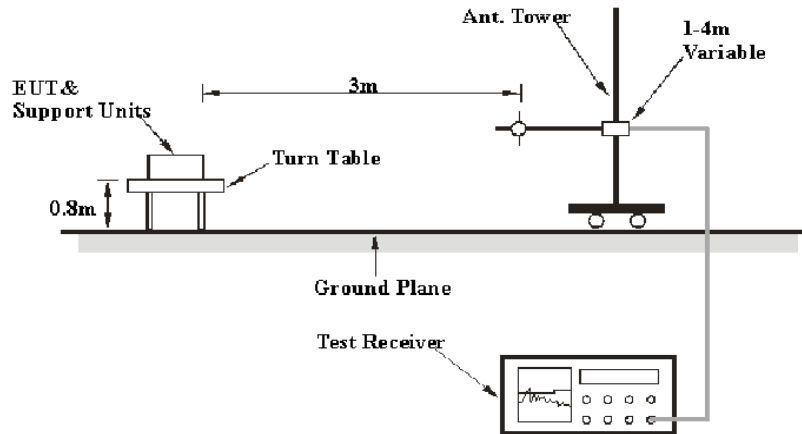
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

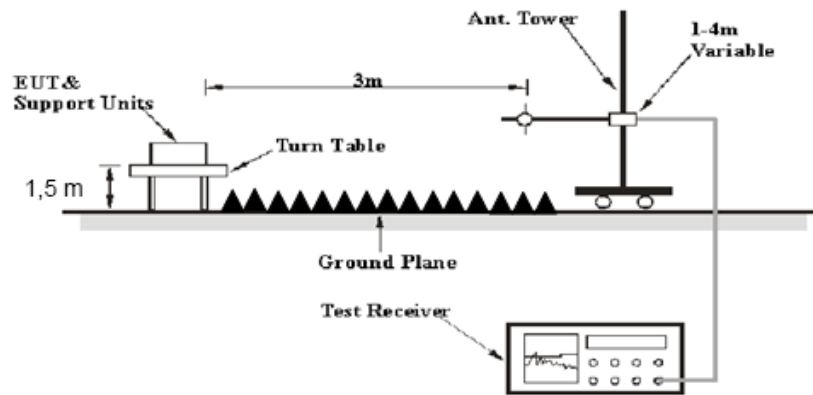
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	AV

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

or

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

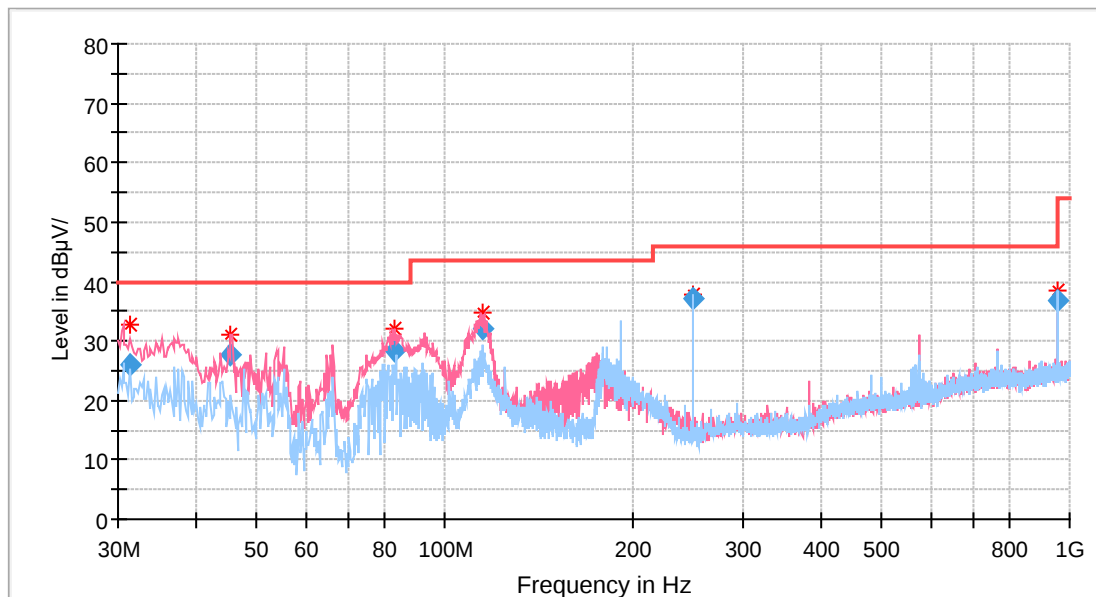
Test Environment Conditions

Temperature:	28 °C
Relative Humidity:	53 %
ATM Pressure:	95.8 kPa

The testing was performed by Winfred Wang on 2020-09-01.

Test Mode: Transmitting (WLAN+WWAN)-Worst case

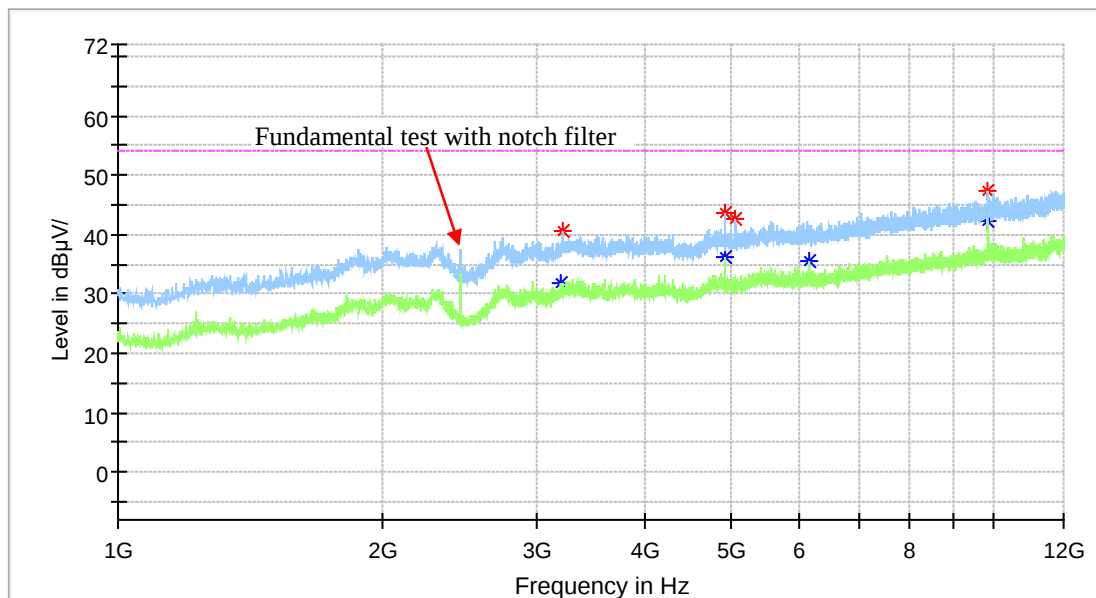
30 MHz to 1 GHz:



Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
/m31.419091	26.07	40.00	13.93	200.0	120.000	109.0	V	194.0	-5.7
45.264400	27.79	40.00	12.21	200.0	120.000	124.0	V	163.0	-14.7
82.892500	28.24	40.00	11.76	200.0	120.000	104.0	V	312.0	-17.9
115.348600	32.10	43.50	11.40	200.0	120.000	103.0	V	0.0	-12.1
250.012800	37.08	46.00	8.92	200.0	120.000	108.0	H	0.0	-13.1
958.398800	36.71	46.00	9.29	200.0	120.000	128.0	H	47.0	-0.8

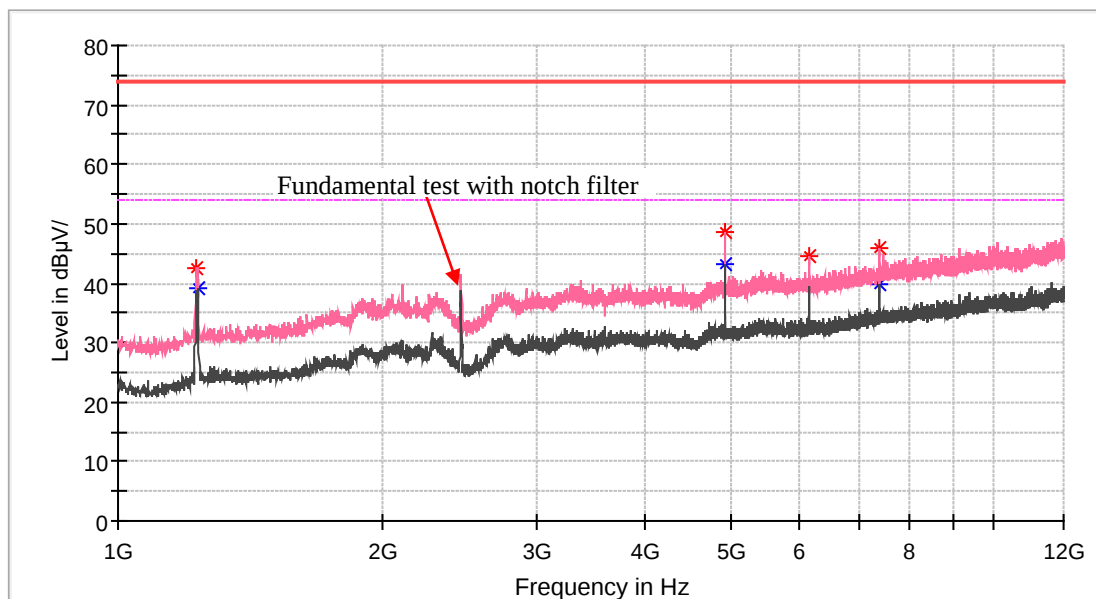
1 GHz to 12 GHz:

Horizontal



Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3193.400000	---	31.78	54.00	22.22	200.0	H	259.0	6.9
3212.100000	40.77	---	74.00	33.23	150.0	H	133.0	6.9
4924.800000	---	36.27	54.00	17.73	200.0	H	46.0	10.6
4924.800000	43.49	---	74.00	30.51	200.0	H	46.0	10.6
5073.300000	42.62	---	74.00	31.38	200.0	H	225.0	11.0
6155.700000	---	35.52	54.00	18.48	150.0	H	72.0	12.3
9849.500000	47.49	---	74.00	26.51	150.0	H	169.0	17.4
9849.500000	---	42.46	54.00	11.54	150.0	H	169.0	17.4

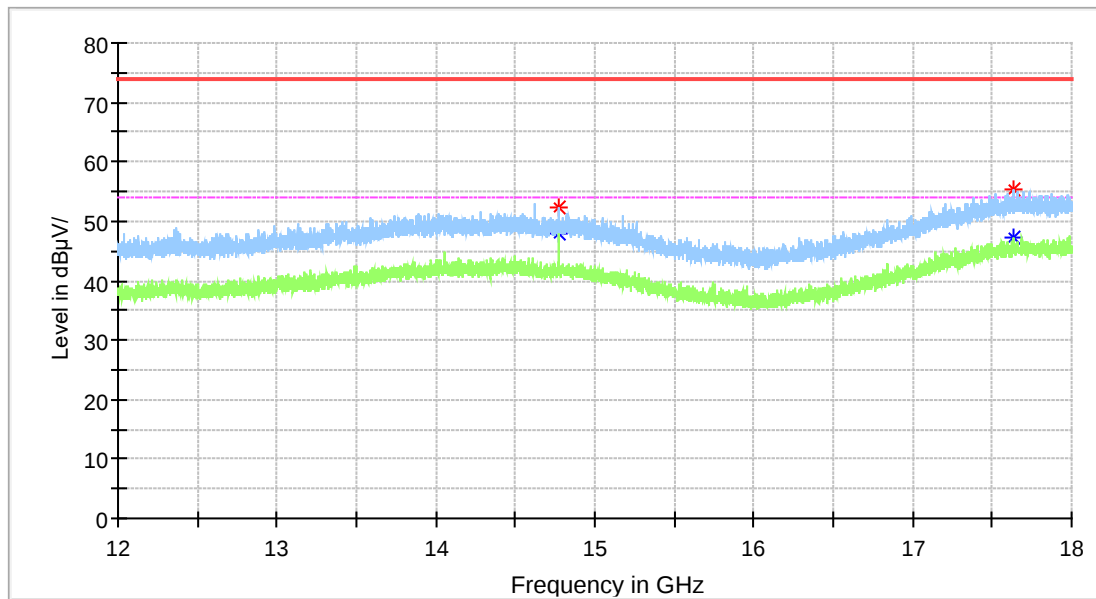
Vertical



Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1231.000000	42.43	---	74.00	31.57	150.0	V	332.0	-0.7
1232.100000	---	39.06	54.00	14.94	150.0	V	332.0	-0.7
4924.800000	48.67	---	74.00	25.33	150.0	V	86.0	10.6
4924.800000	---	43.26	54.00	10.74	150.0	V	86.0	10.6
6155.700000	---	39.48	54.00	14.52	150.0	V	0.0	12.3
6155.700000	44.60	---	74.00	29.40	150.0	V	0.0	12.3
7388.800000	---	39.99	54.00	14.01	150.0	V	77.0	14.4
7388.800000	45.78	---	74.00	28.22	150.0	V	77.0	14.4

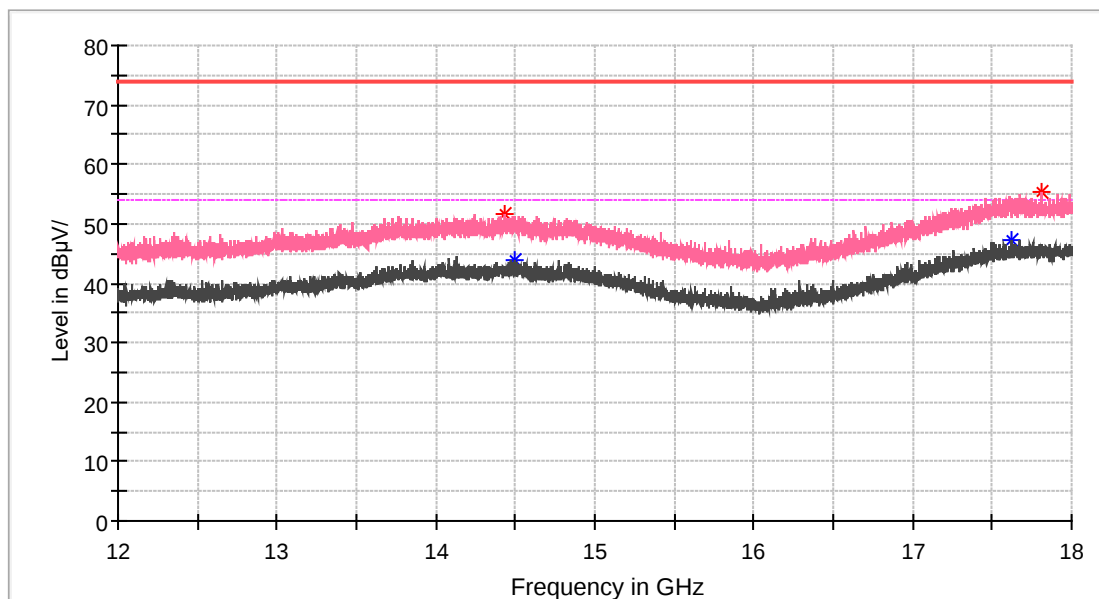
12 GHz to 18 GHz:

Horizontal



Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
14773.200000	---	48.09	54.00	5.91	150.0	H	194.0	24.1
14773.200000	52.46	---	74.00	21.54	150.0	H	194.0	24.1
17634.000000	---	47.28	54.00	6.72	150.0	H	0.0	27.5
17638.200000	55.28	---	74.00	18.72	150.0	H	277.0	27.5

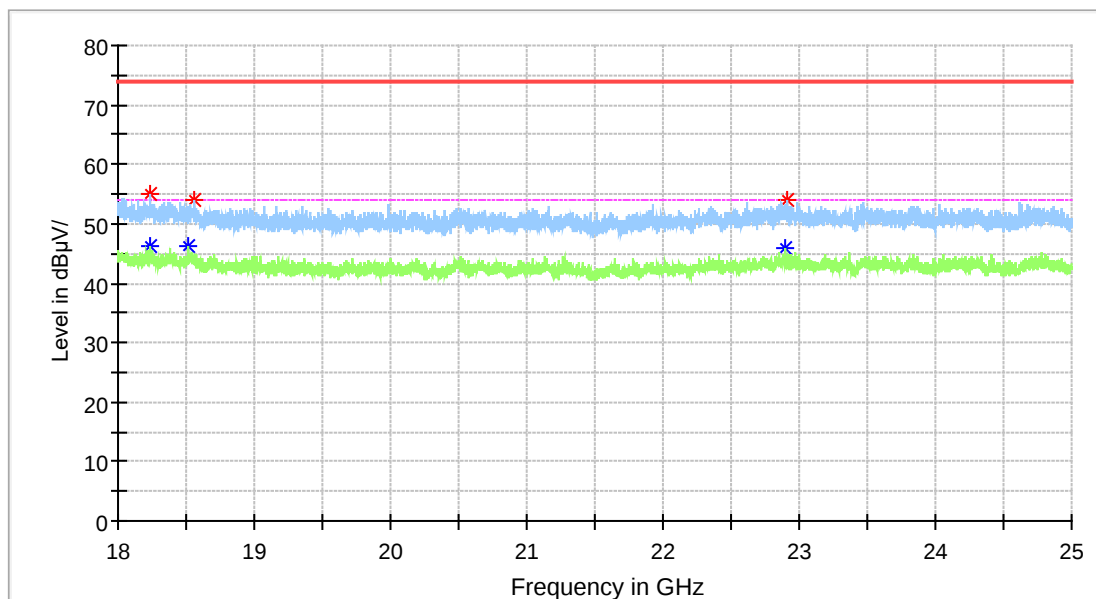
Vertical



Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
14432.400000	51.67	---	74.00	22.33	150.0	V	26.0	24.4
14498.400000	---	43.86	54.00	10.14	150.0	V	10.0	24.4
17620.200000	---	47.27	54.00	6.73	150.0	V	0.0	27.5
17809.800000	55.25	---	74.00	18.75	150.0	V	99.0	27.7

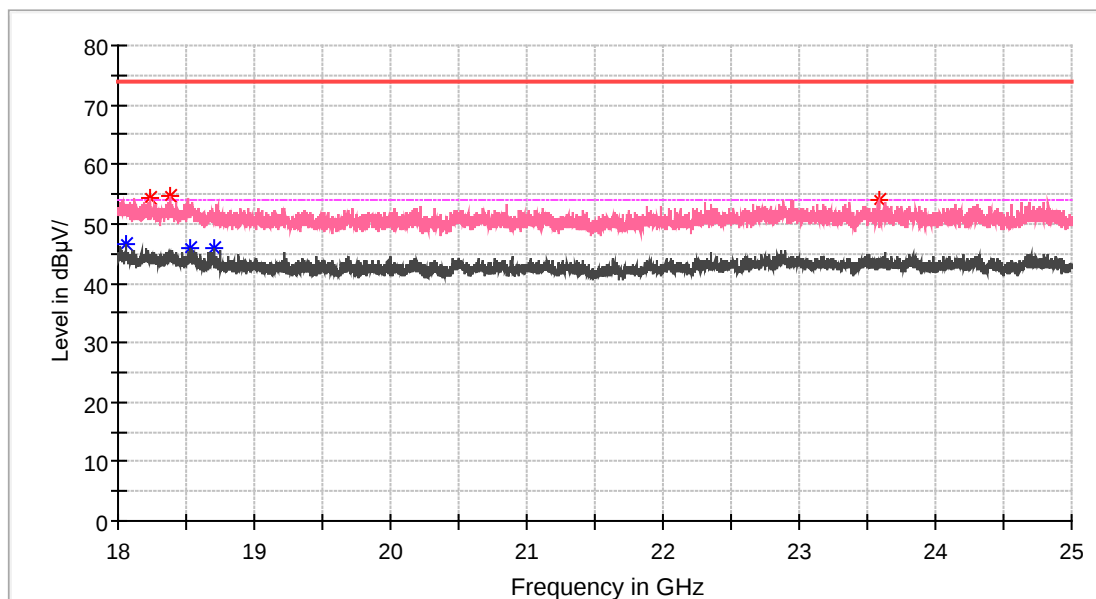
18 GHz to 25 GHz:

Horizontal



Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18233.100000	---	46.17	54.00	7.83	100.0	H	206.0	7.7
18240.800000	54.98	---	74.00	19.02	100.0	H	148.0	7.7
18511.000000	---	46.23	54.00	7.77	100.0	H	131.0	7.7
18554.400000	53.87	---	74.00	20.13	100.0	H	2.0	7.6
22896.500000	---	45.78	54.00	8.22	100.0	H	0.0	9.2
22910.500000	53.86	---	74.00	20.14	100.0	H	222.0	9.3

Vertical



Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18053.900000	---	46.48	54.00	7.52	100.0	V	271.0	7.7
18231.700000	54.21	---	74.00	19.79	100.0	V	280.0	7.7
18377.300000	54.83	---	74.00	19.17	100.0	V	164.0	7.7
18529.200000	---	45.99	54.00	8.01	100.0	V	164.0	7.6
18701.400000	---	45.78	54.00	8.22	100.0	V	138.0	7.4
23581.100000	53.99	---	74.00	20.01	100.0	V	0.0	9.3

Note:

Corrected Amplitude = Corrected Factor + Reading

Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor

Margin = Limit- Corr. Amplitude

END OF REPORT