

PRODUCT	Optic Transceiver
DUT MODEL	OPT-LIN22-B1 (V1.0)
Ref. STANDARD	CISPR 25 ed.4
TEST ITEM	RE (150k-2.5GHz)
TEST LEVEL	Class 5
TEST SETUP	Quar-OPTs method (see Page 2)
BUS SIGNAL GENERATOR	OPT-BUSTT-A1
TEST LAB	TMTest
TEST DATE	09.Nov.2022

## Description:

1, Wires between two optic transceivers in the chamber are unshielded normal wires.

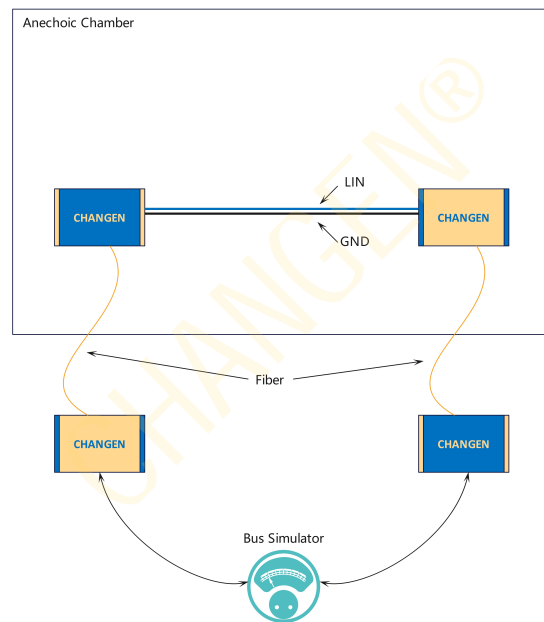
2, 19.2 kbps are more popular in practise, all tests are performed with this speed.

## Quar-OPTs method

It is a method to evaluate the performance of optic transceivers, four optic transceivers could create a test loop.

The advantage of this method is:

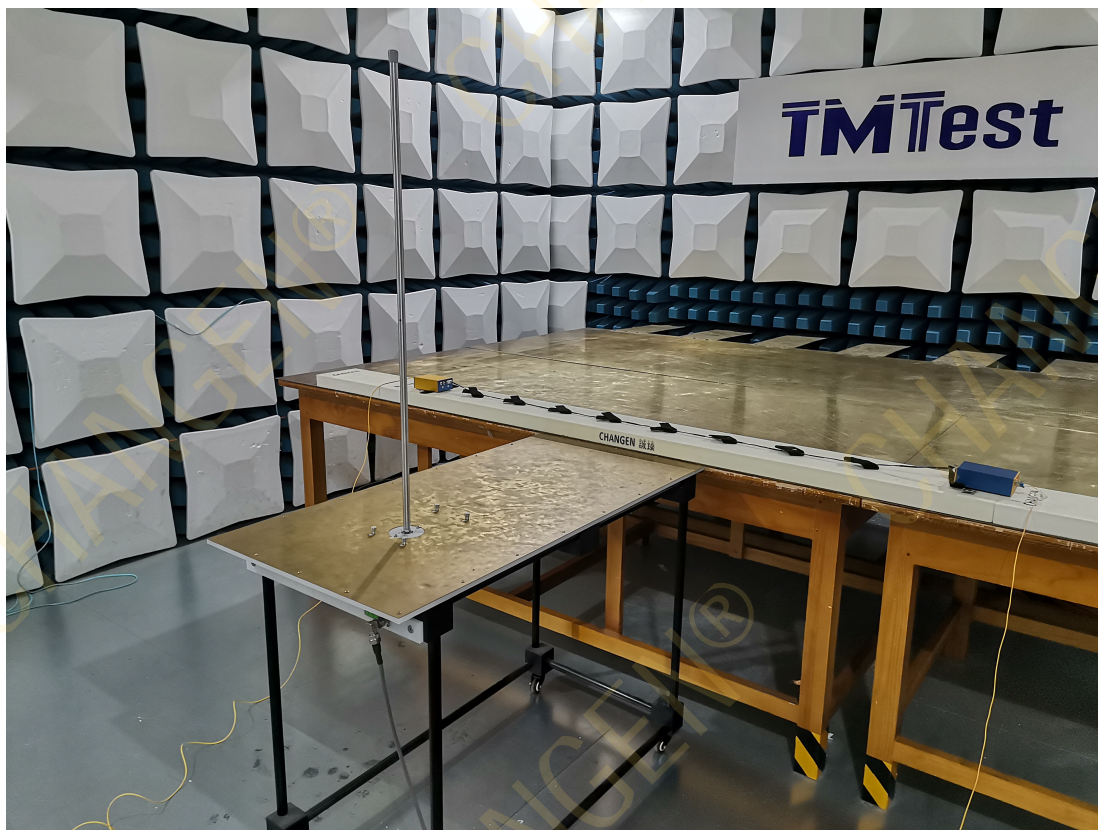
- 1, No affect from EUT, all test results are related to employed optic transceivers.
- 2, The layout is identical with real tests.
- 3, Repeatability is good.
- 4, Easy to build test layout.



## Equipment List

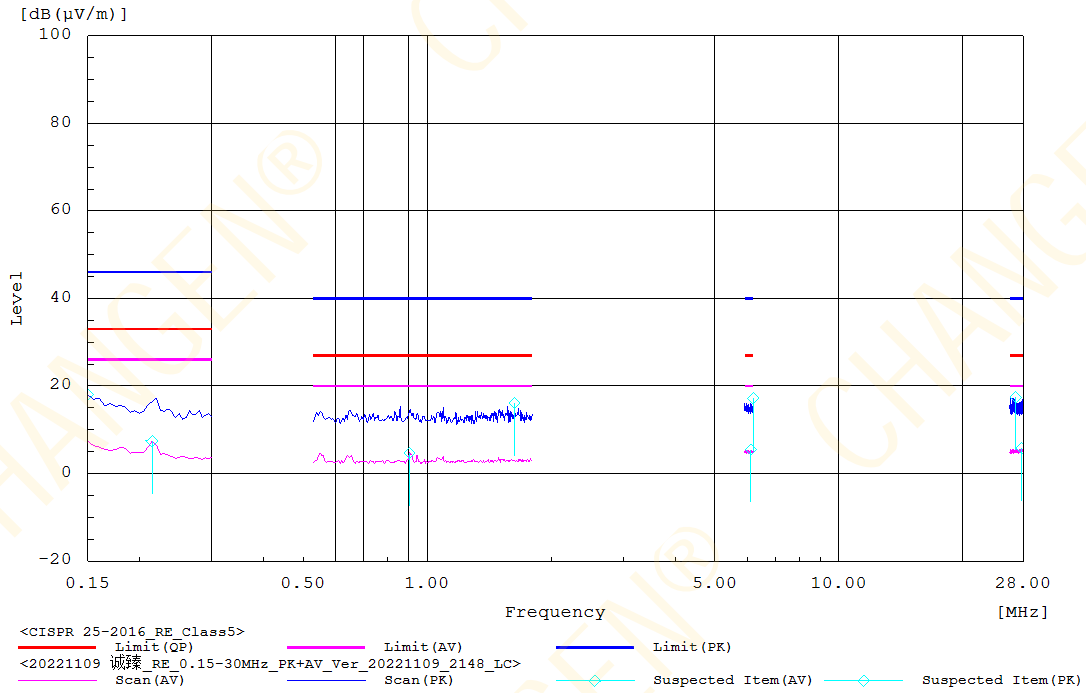
Equipment	Model	SN	Manufacturer	Next Cal. Date
Anechoic Chamber 2	SAC2 (7m*6m*4m)	GZEC-FA-A00 2	Albatross Projects	2024.06.14
Support( $\epsilon_r < 1.4$ )	LF225	--	CHANGEN	--
Support( $\epsilon_r < 1.4$ )	LF525	--	CHANGEN	--
Test Software	EP9VE	Version4.0.0 40	TOYO	--
EMI Receiver	ESR7	101180	ROHDE&SCHWARZ	2024.06.08
Pre-Amplifier	EMC 003835B	980350	EMCI	2024.11.19
Monopole Antenna	VAMP 9423 B	01200	SCHWARZBECK	2024.06.26
Bi-Conical Antenna	VHBB 9124+BBA 9106	01190	SCHWARZBECK	2024.09.09
Log Antenna	VUSLP 9111B	00382	SCHWARZBECK	2024.06.25
Horn Antenna	BBHA 9120 E	00791	SCHWARZBECK	2024.09.09

Test Photos

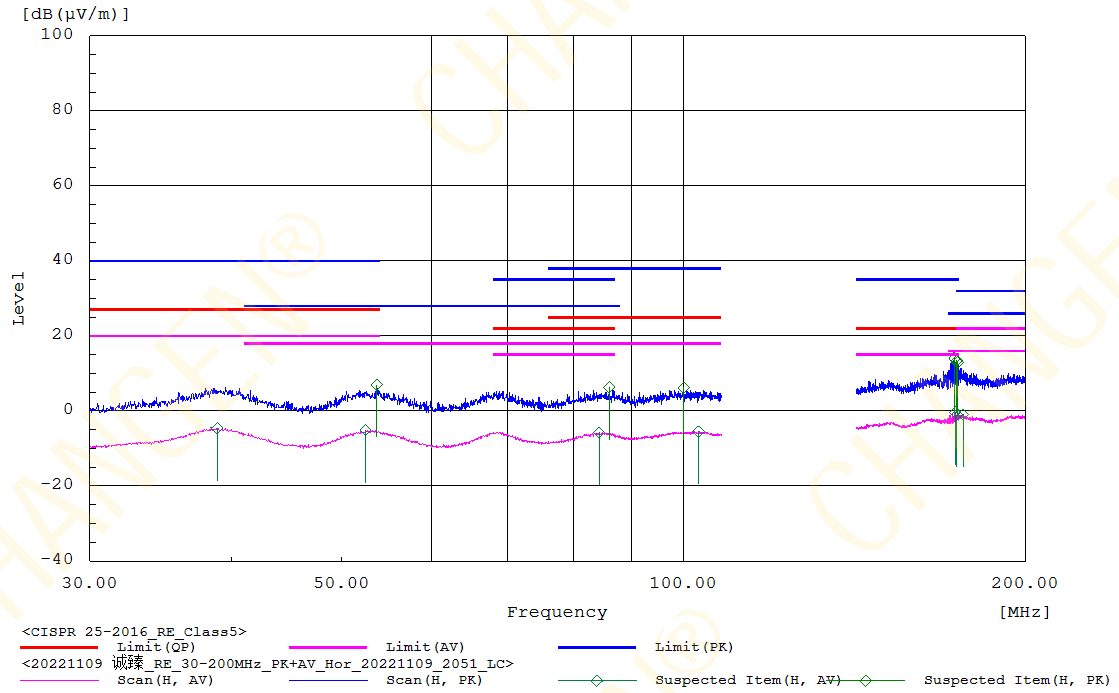




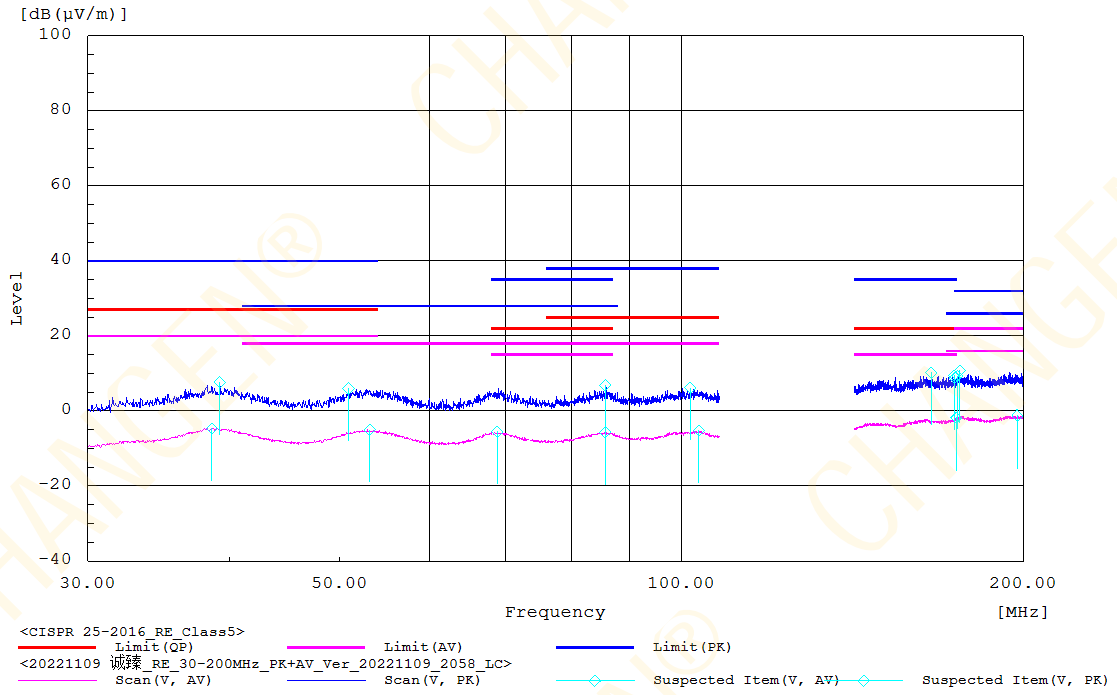
Test Results



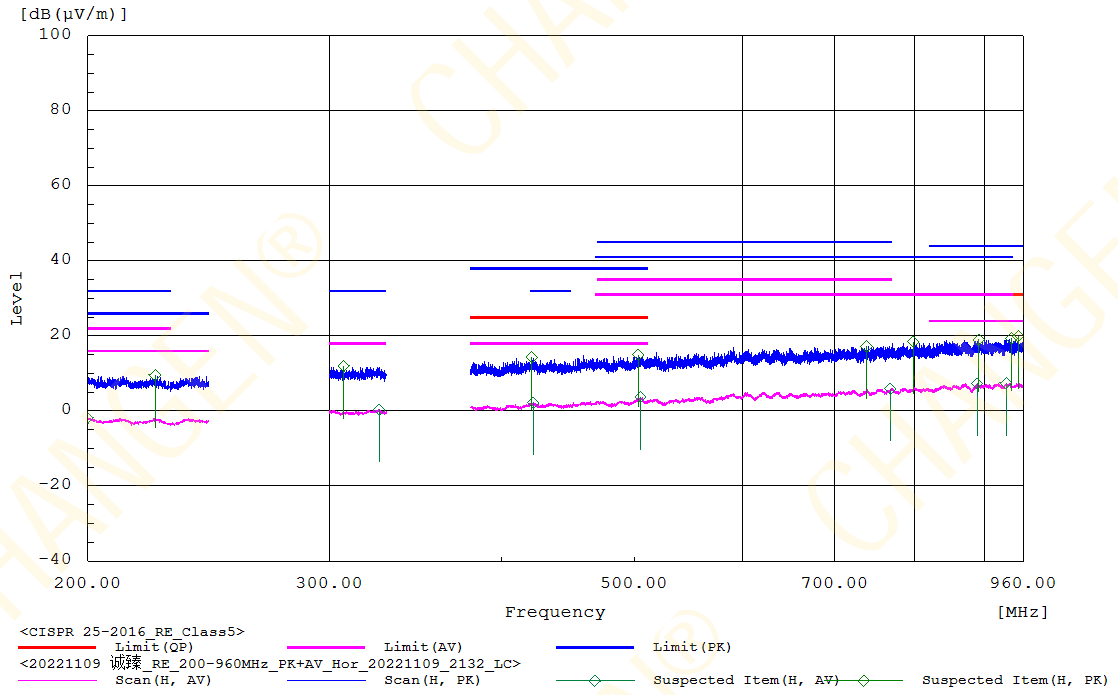
Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(µV)				dB(1/m)	dB(µV/m)			dB(µV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
0.150				8.1	9.9			18.0			46.0			28.0	
0.215			-2.4		9.9		7.5			26.0			18.5		
0.905			-5.0		9.7		4.7			20.0			15.3		
1.630				6.5	9.6			16.1			40.0			23.9	
6.110			-4.1		9.6		5.5			20.0			14.5		
6.185				7.6	9.6			17.2			40.0			22.8	
26.850				7.4	10.0			17.4			40.0			22.6	
27.755			-4.3		10.1		5.8			20.0			14.2		



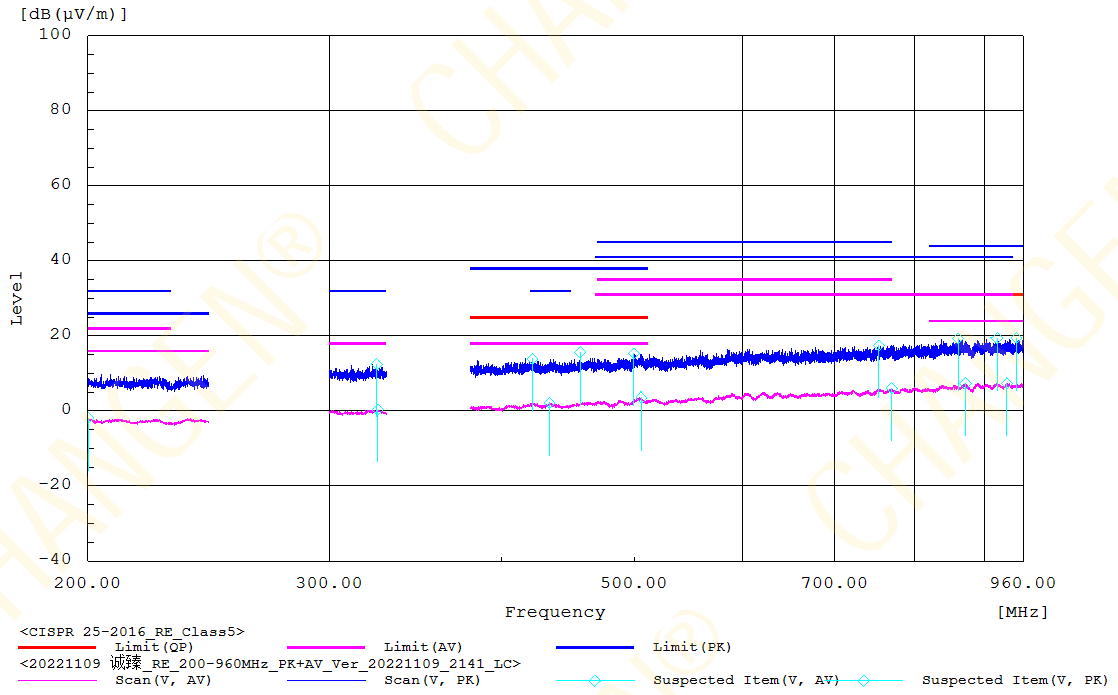
Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(µV)				dB(1/m)	dB(µV/m)			dB(µV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
38.850	H		16.5		-21.0		-4.5			20.0			24.5		
52.500	H		16.2		-21.3		-5.1			18.0			23.1		
53.700	H			28.4	-21.4			7.0		28.0				21.0	
84.300	H		16.3		-22.0		-5.7			15.0			20.7		
86.050	H			28.4	-22.0			6.4		28.0				21.6	
100.050	H			27.9	-21.7			6.2		38.0				31.8	
103.150	H		15.9		-21.4		-5.5			18.0			23.5		
173.250	H			31.5	-17.6			13.9		26.0				12.1	
173.500	H		17.2		-17.5		-0.3			15.0			15.3		
174.100	H			31.0	-17.5			13.5		26.0				12.5	
174.150	H		16.5		-17.5		-1.0			15.0			16.0		
174.350	H			30.4	-17.5			12.9		26.0				13.1	
176.350	H		16.5		-17.4		-0.9			16.0			16.9		



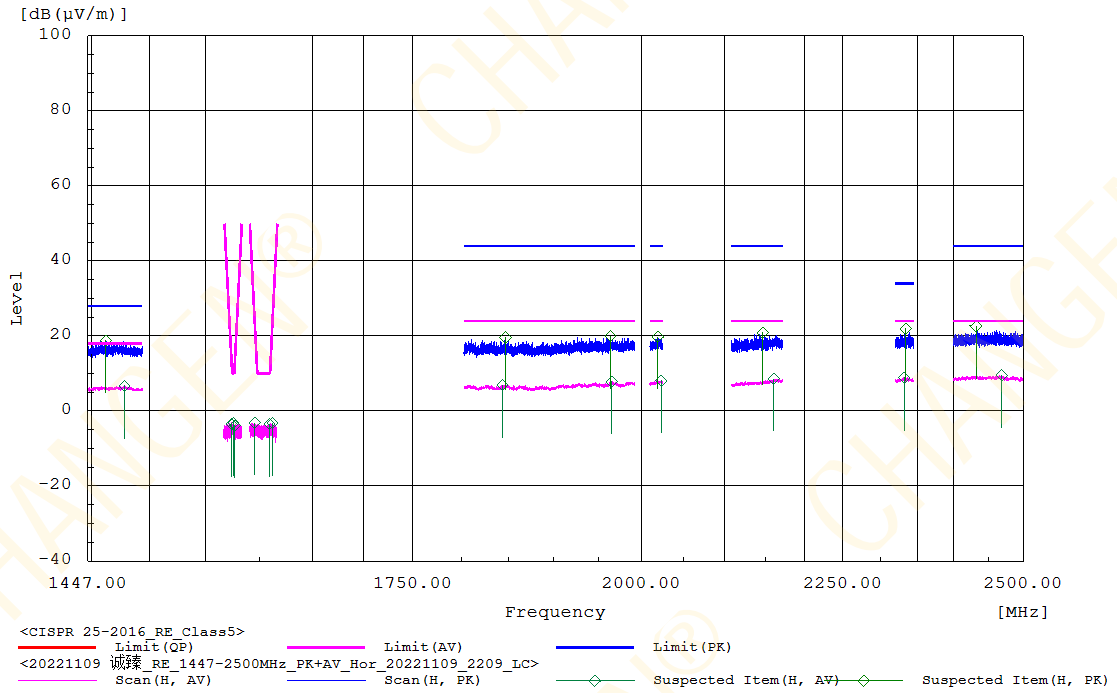
Frequency MHz	Pol	Reading			Factor dB(1/m)	Level dB(µV/m)			Limit dB(µV/m)			Margin dB		
		dB(µV)				dB(µV/m)			dB(µV/m)			dB		
		QP	AV	PK		QP	AV	PK	QP	AV	PK	QP	AV	PK
38.600	V		16.4		-21.0		-4.6			20.0			24.6	
39.200	V			28.7	-21.0					40.0			32.3	
50.900	V			27.2	-21.2					28.0			22.0	
53.150	V		16.3		-21.3		-5.0			18.0			23.0	
68.850	V		16.6		-22.1		-5.5			15.0			20.5	
85.700	V		16.3		-22.0		-5.7			15.0			20.7	
85.700	V			28.9	-22.0					28.0			21.1	
101.800	V			27.7	-21.5					38.0			31.8	
103.600	V		16.1		-21.3		-5.2			18.0			23.2	
166.000	V			28.5	-18.2					10.3			24.7	
173.850	V			27.0	-17.5					9.5			16.5	
174.100	V			26.4	-17.5					8.9			17.1	
174.550	V		15.7		-17.4		-1.7			15.0			16.7	
174.600	V		15.6		-17.4		-1.8			15.0			16.8	
174.950	V			26.8	-17.4					9.4			16.6	
175.850	V			28.3	-17.4					10.9			15.1	
197.650	V		16.0		-17.2		-1.2			16.0			17.2	



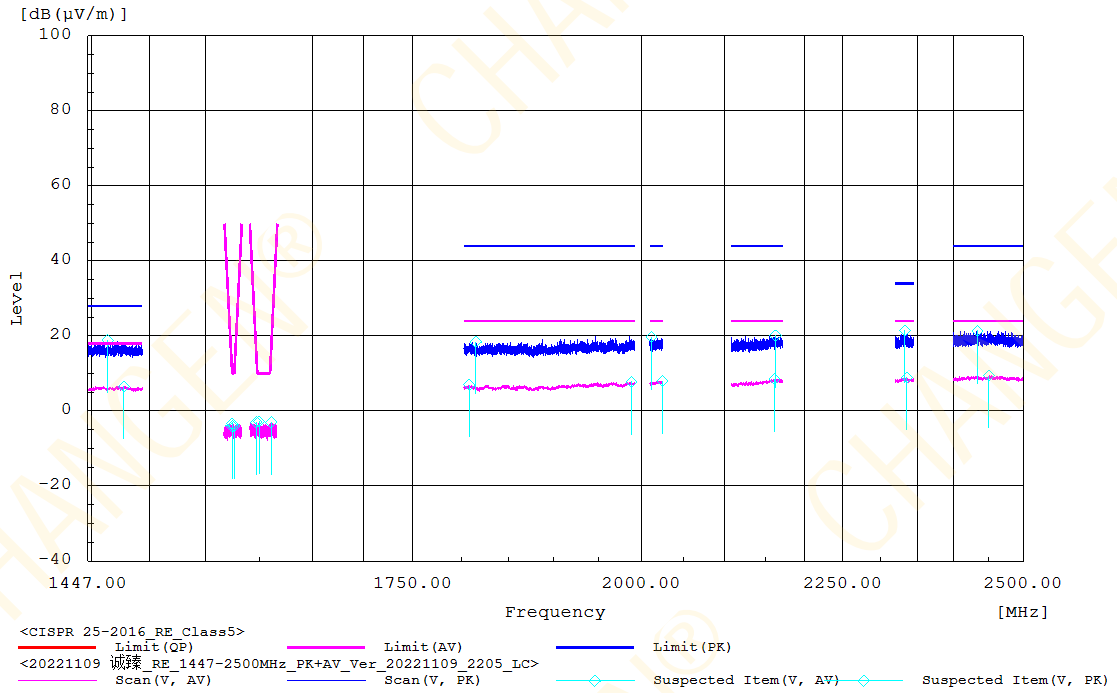
Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(μV)				dB(1/m)	dB(μV/m)			dB(μV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
200.000	H		15.9		-17.8		-1.9			16.0			17.9		
223.950	H			27.8	-18.2			9.6		26.0				16.4	
307.300	H			28.0	-16.0			12.0		32.0				20.0	
326.150	H		15.9		-15.5		0.4			18.0			17.6		
421.050	H			28.2	-13.9			14.3		32.0				17.7	
422.200	H		16.2		-13.9		2.3			18.0			15.7		
503.350	H			27.8	-12.8			15.0		38.0				23.0	
505.250	H		16.4		-12.7		3.7			18.0			14.3		
738.200	H			27.9	-10.7			17.2		41.0				23.8	
767.900	H		16.0		-10.0		6.0			31.0			25.0		
798.300	H			28.1	-9.6			18.5		41.0				22.5	
888.500	H		15.3		-8.0		7.3			24.0			16.7		
890.950	H			27.0	-8.0			19.0		41.0				22.0	
932.800	H		15.2		-7.7		7.5			24.0			16.5		
941.150	H			27.0	-7.6			19.4		41.0				21.6	
952.100	H			27.5	-7.5			20.0		44.0				24.0	



Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(μV)				dB(1/m)	dB(μV/m)			dB(μV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
200.150	V		15.9		-17.8		-1.9			16.0			17.9		
324.650	V			28.0	-15.6			12.4			32.0			19.6	
325.250	V		16.0		-15.6		0.4			18.0			17.6		
421.550	V			27.8	-13.9			13.9			32.0			18.1	
433.850	V		16.2		-14.0		2.2			18.0			15.8		
456.700	V			29.4	-13.7			15.7			38.0			22.3	
499.850	V			28.3	-12.9			15.4			38.0			22.6	
506.100	V		16.3		-12.7		3.6			18.0			14.4		
753.600	V			27.7	-10.2			17.5			41.0			23.5	
770.000	V		16.1		-10.1		6.0			31.0			25.0		
860.650	V			28.0	-8.7			19.3			41.0			21.7	
871.400	V		15.5		-8.1		7.4			24.0			16.6		
918.950	V			27.3	-7.8			19.5			41.0			21.5	
934.200	V		15.1		-7.7		7.4			24.0			16.6		
949.300	V			26.9	-7.5			19.4			44.0			24.6	



Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(µV)				dB(1/m)	dB(µV/m)			dB(µV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
1462.550	H			39.3	-20.5			18.8			28.0			9.2	
1478.350	H		26.9		-20.2		6.7			18.0			11.3		
1573.960	H		17.0		-20.5		-3.5			12.6			16.1		
1575.710	H		17.4		-20.5		-3.1			10.0			13.1		
1576.895	H		16.7		-20.5		-3.8			12.7			16.5		
1595.415	H		17.2		-20.3		-3.1			23.5			26.6		
1609.390	H		16.9		-20.4		-3.5			10.0			13.5		
1611.870	H		17.3		-20.4		-3.1			23.0			26.1		
1843.700	H		26.9		-19.9		7.0			24.0			17.0		
1847.150	H			39.6	-19.9			19.7			44.0			24.3	
1963.850	H			39.2	-19.1			20.1			44.0			23.9	
1965.400	H		26.8		-19.0		7.8			24.0			16.2		
2019.500	H			38.2	-18.4			19.8			44.0			24.2	
2023.300	H		26.7		-18.5		8.2			24.0			15.8		
2146.850	H			39.2	-18.3			20.9			44.0			23.1	
2160.900	H		26.5		-17.9		8.6			24.0			15.4		
2332.100	H		26.2		-17.3		8.9			24.0			15.1		
2334.050	H			39.1	-17.2			21.9			34.0			12.1	
2432.250	H			39.1	-16.4			22.7			44.0			21.3	
2468.750	H		25.7		-16.2		9.5			24.0			14.5		



Frequency MHz	Pol	Reading			Factor	Level			Limit			Margin			
		dB(µV)				dB(1/m)	dB(µV/m)			dB(µV/m)			dB		
		QP	AV	PK			QP	AV	PK	QP	AV	PK	QP	AV	PK
1463.900	V			39.3	-20.4		18.9			28.0			9.1		
1477.950	V		26.9		-20.3		6.6		18.0			11.4			
1574.420	V		16.5		-20.5		-4.0		10.0			14.0			
1574.525	V		17.2		-20.5		-3.3		10.0			13.3			
1576.475	V		16.4		-20.5		-4.1		10.3			14.4			
1596.735	V		17.3		-20.3		-3.0		16.0			19.0			
1599.460	V		17.5		-20.3		-2.8		10.0			12.8			
1610.885	V		17.4		-20.4		-3.0		17.4			20.4			
1808.400	V		27.0		-20.0		7.0		24.0			17.0			
1815.600	V			38.4	-20.0		18.4			44.0			25.6		
1988.400	V		26.5		-18.7		7.8		24.0			16.2			
2012.000	V			38.3	-18.5		19.8			44.0			24.2		
2024.550	V		26.6		-18.5		8.1		24.0			15.9			
2161.400	V		26.4		-17.9		8.5		24.0			15.5			
2163.150	V			38.1	-17.9		20.2			44.0			23.8		
2332.900	V			38.8	-17.3		21.5			34.0			12.5		
2335.450	V		26.2		-17.2		9.0		24.0			15.0			
2434.150	V			37.7	-16.4		21.3			44.0			22.7		
2450.550	V		25.7		-16.3		9.4		24.0			14.6			