



FCC RADIO TEST REPORT

FCC ID : 2AJN7-TP00145D
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00145D, TP00145E
Applicant : LC Future Center Limited Taiwan Branch
7F., No.780, Beian Rd., Zhongshan Dist.,
Taipei 104, Taiwan
Manufacturer : Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place 979 King's
Road, Quarry Bay, Hong Kong, P.R. China
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

Equipment: Rolling Wireless RW350R-GL tested inside of Lenovo Notebook Computer.

The product was received on Dec. 06, 2024 and testing was performed from Dec. 31, 2024 to Feb. 05, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issue Date
FG4D0659A	01	Initial issue of report	Mar. 03, 2025
FG4D0659A	02	Revise section 1.1 This report is an updated version, replacing the report issued on Mar. 03, 2025.	Mar. 31, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (WCDMA Band V)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
-	§24.232 (d)	Peak-to-Average Ratio	Pass	See Note
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	See Note
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Pass	See Note
4.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	-
Remark: 1. For host device, Field Strength of Spurious Radiation, Effective Radiated Power and Equivalent Isotropic Radiated Power are verified and comply with the limit in this test report. 2. For host device, the Conducted Output Power is no difference after compared to module (Model: RW350R-GL)				

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The purpose of different model name is for marketing segmentation.

Reviewed by: Sheng Kuo

Report Producer: Wilda Wei

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00145D, TP00145E
FCC ID	2AJN7-TP00145D
Sample 1	EUT with Amphenol Taiwan Corporation Antenna
Sample 2	EUT with Speed Antenna
Integrated WLAN Module	Brand Name: Intel Model Name: AX211D2W FCC ID: PD9AX211D2
Integrated WLAN Module	Brand Name: Intel Model Name: BE201D2W FCC ID: PD9BE201D2
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747 FCC ID: MCLT77H747
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 WLAN 11be EHT20/ EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer.
2. Equipment: Rolling Wireless RW350R-GL tested inside of Lenovo Notebook Computer.
3. All the tests were performed with TP00145D.

WWAN Antenna Information				
Main Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak Gain	WCDMA Band V: -1.58 dBi
	Part number	DC330025X30	Type	PIFA
	Manufacturer	Speed	Peak Gain	WCDMA Band V: -1.58 dBi
	Part number	DC330025Y30	Type	PIFA
MIMO2 Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak Gain	WCDMA Band II: 1.87 dBi WCDMA Band IV: -1.51 dBi
	Part number	DC330025X40	Type	PIFA
	Manufacturer	Speed	Peak Gain	WCDMA Band II: 1.87 dBi WCDMA Band IV: -1.51 dBi
	Part number	DC330025Y40	Type	PIFA

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx Frequency	WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	WCDMA: <Main Antenna> Band V: 23.45 dBm <MIMO 2 Antenna> Band II: 23.45 dBm Band IV: 23.71 dBm
Type of Modulation	WCDMA: BPSK (Uplink) HSDPA: 16QAM (Downlink) HSUPA: 16QAM (Uplink)

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333
Test Site No.	Sporton Site No.
	TH03-HY
Test Engineer	Eric Wu
Temperature (°C)	20.7~22.7
Relative Humidity (%)	56.7~58.7

Test Site	Sporton International Inc. Wensan Laboratory.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010
Test Site No.	Sporton Site No.
	03CH16-HY (TAF Code: 3786)
Test Engineer	Jerry Lan, Gary Guo and Steven Wu
Temperature (°C)	19.1~22.3
Relative Humidity (%)	62.5~68.3
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for WCDMA Band II

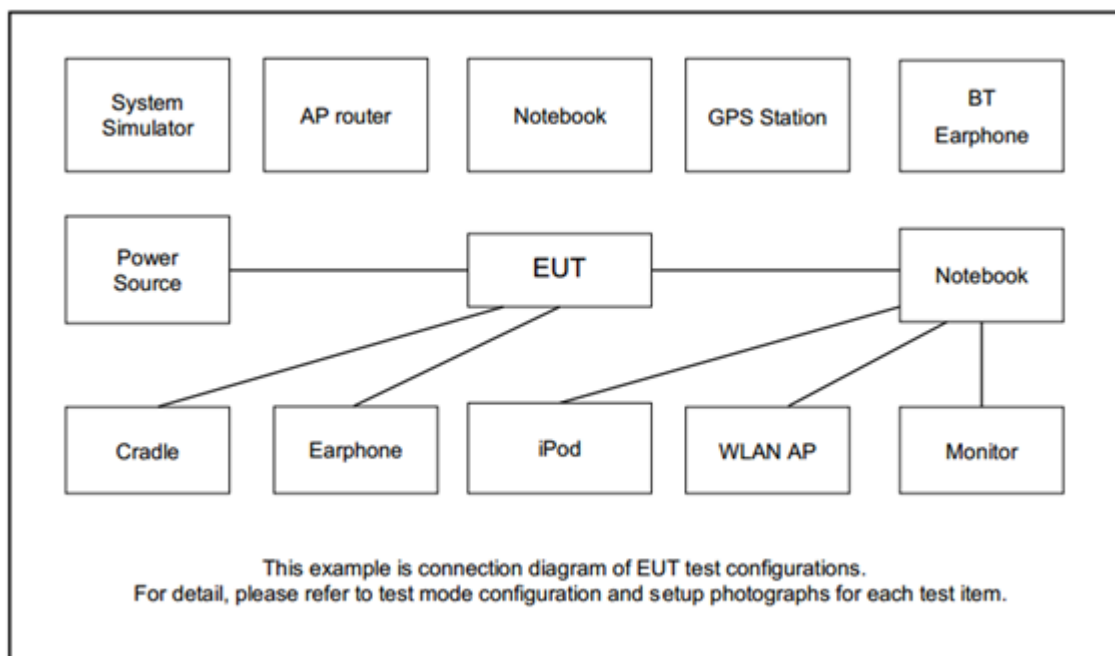
All modes, data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Remark: All the radiated test cases were performed with Sample 2 and Battery 1.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	Earphone	UGREEN	N/A	N/A	Shielded, 1.5M	N/A

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

3 Conducted Test Result

3.1 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port is connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

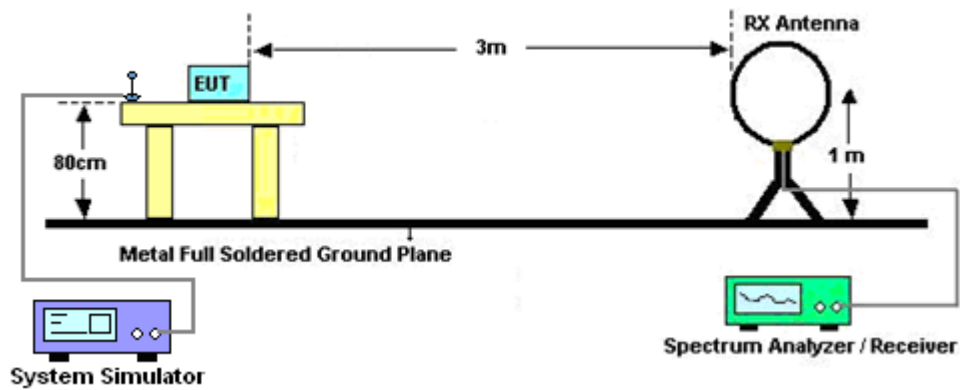
4 Radiated Test Items

4.1 Measuring Instruments

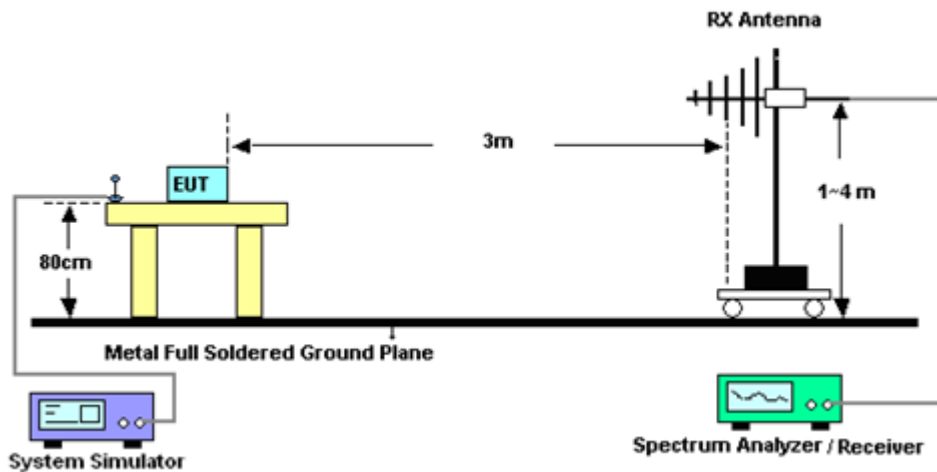
Please refer to the measuring equipment list in this test report.

4.2 Test Setup

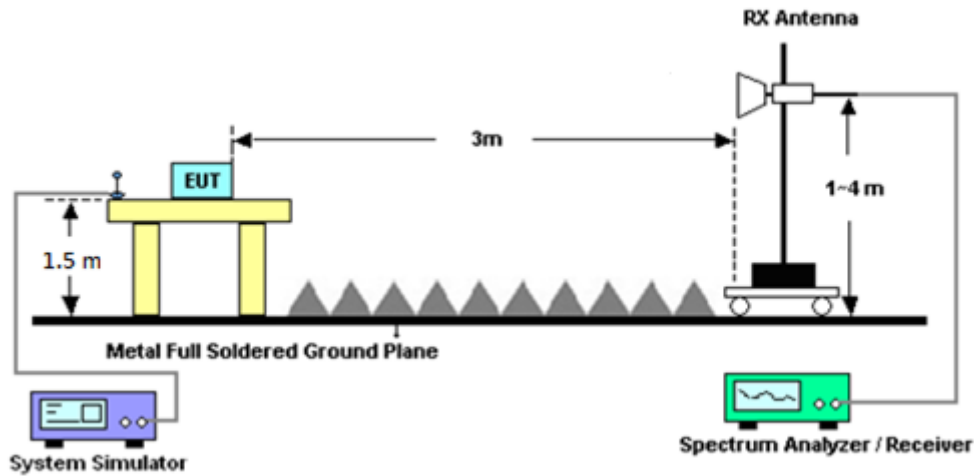
For radiated test below 30MHz



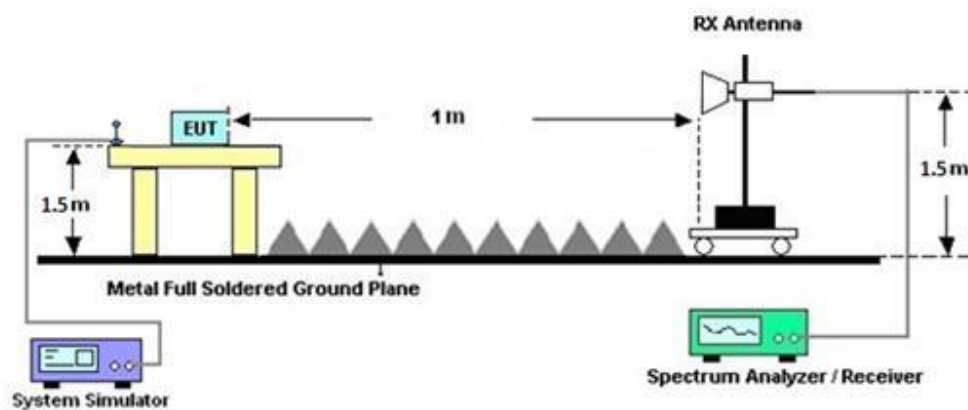
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. The EUT is placed on a rotatable wooden table 0.8 meters for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz above the ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1 MHz, VBW = 3 MHz, taking record of maximum spurious emission.
6. To convert spectrum reading E(dBuV/m) to EIRP(dBm)
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77,$$
where d is the distance at which field strength limit is specified in the rules
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency shall be excluded against the limit line in the operating frequency band.
10. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	Jan. 11, 2025~ Feb. 05, 2025	Feb. 22, 2025	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	1223	18GHz~40GHz	Jun. 24, 2024	Jan. 11, 2025~ Feb. 05, 2025	Jun. 23, 2025	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Nov. 22, 2024	Jan. 11, 2025~ Feb. 05, 2025	Nov. 21, 2025	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 05, 2024	Jan. 11, 2025~ Feb. 05, 2025	Oct. 04, 2025	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 28, 2024	Jan. 11, 2025~ Feb. 05, 2025	Mar. 27, 2025	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 02, 2024	Jan. 11, 2025~ Feb. 05, 2025	Jul. 01, 2025	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 05, 2024	Jan. 11, 2025~ Feb. 05, 2025	Dec. 04, 2025	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 24, 2024	Jan. 11, 2025~ Feb. 05, 2025	Dec. 23, 2025	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	May 27, 2024	Jan. 11, 2025~ Feb. 05, 2025	May 26, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN17	1.53GHz Low Pass Filter	Jan. 15, 2024	Jan. 11, 2025~ Jan. 13, 2025	Jan. 14, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN17	1.53GHz Low Pass Filter	Jan. 14, 2025	Jan. 14, 2025~ Feb. 05, 2025	Jan. 13, 2026	Radiation (03CH16-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN3	3GHz High Pass Filter	Jun. 28, 2024	Jan. 11, 2025~ Feb. 05, 2025	Jun. 27, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN27	6.75GHz High Pass Filter	Dec. 26, 2024	Jan. 11, 2025~ Feb. 05, 2025	Dec. 25, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WRCD1710-1 980-10-40-10S SK	SN2	1710-1980	Aug. 17, 2024	Jan. 11, 2025~ Feb. 05, 2025	Aug. 16, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 06, 2024	Jan. 11, 2025~ Feb. 05, 2025	Mar. 05, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102/SUCOFLE X 104	EC-A5-300-5 757,805935/ 4,802434/4	30MHz~18GHz	Aug. 07, 2024	Jan. 11, 2025~ Feb. 05, 2025	Aug. 06, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804 012/2	18-40GHz	Dec. 31, 2024	Jan. 11, 2025~ Feb. 05, 2025	Dec. 30, 2025	Radiation (03CH16-HY)
Software	Audix	E3 230621 V9	RK-002393	N/A	N/A	Jan. 11, 2025~ Feb. 05, 2025	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jan. 11, 2025~ Feb. 05, 2025	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 11, 2025~ Feb. 05, 2025	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 11, 2025~ Feb. 05, 2025	N/A	Radiation (03CH16-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~40GHz	Sep. 25, 2024	Dec. 31, 2024	Sep. 24, 2025	Conducted (TH03-HY)
DC Power Supply	GW Instek	GPE-2323	GEU871221	0V~64V ; 0A~6A	Apr. 09, 2024	Dec. 31, 2024	Apr. 08, 2025	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 08, 2024	Dec. 31, 2024	Aug. 07, 2025	Conducted (TH03-HY)
Temperature & Humidity Cabinet Chamber	ESPEC	SH-641	92013720	-40℃~90℃	Sep. 06, 2024	Dec. 31, 2024	Sep. 05, 2025	Conducted (TH03-HY)
Hygrometer	TECPEL	DTM-303B	TP200886	N/A	Mar. 14, 2024	Dec. 31, 2024	Mar. 13, 2025	Conducted (TH03-HY)

6 Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.5 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 6 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9 dB
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Uncertainty of Radiated Emission Measurement (6 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
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Appendix A. Test Results of Conducted Test

<Main Antenna>

Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = -1.58 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.45	23.41	23.35	19.72	0.0938
HSDPA Subtest-1	22.48	22.43	22.39		
HSDPA Subtest-2	22.48	22.41	22.35		
HSDPA Subtest-3	22.01	21.95	21.86		
HSDPA Subtest-4	21.96	21.90	21.83		
HSUPA Subtest-1	20.39	20.32	20.29		
HSUPA Subtest-2	20.37	20.31	20.28		
HSUPA Subtest-3	21.43	21.36	21.30		
HSUPA Subtest-4	19.95	19.82	19.81		
HSUPA Subtest-5	21.40	21.30	21.20		
Limit	ERP < 7W			Result	Pass



<MIMO 2 Antenna>

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 1.87 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.23	23.45	23.35	25.32	0.3404
HSDPA Subtest-1	22.24	22.46	22.42		
HSDPA Subtest-2	22.25	22.47	22.39		
HSDPA Subtest-3	21.78	22.00	21.96		
HSDPA Subtest-4	21.73	21.98	21.90		
HSUPA Subtest-1	20.30	20.42	20.34		
HSUPA Subtest-2	20.29	20.42	20.29		
HSUPA Subtest-3	21.28	21.43	21.38		
HSUPA Subtest-4	19.82	20.06	19.96		
HSUPA Subtest-5	21.20	21.40	21.30		
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = -1.51 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.71	23.39	23.59	22.20	0.1660
HSDPA Subtest-1	22.74	22.37	22.60		
HSDPA Subtest-2	22.69	22.35	22.62		
HSDPA Subtest-3	22.21	21.89	22.16		
HSDPA Subtest-4	22.18	21.85	22.11		
HSUPA Subtest-1	20.75	20.43	20.67		
HSUPA Subtest-2	20.70	20.39	20.62		
HSUPA Subtest-3	21.66	21.34	21.57		
HSUPA Subtest-4	20.24	19.94	20.20		
HSUPA Subtest-5	21.60	21.30	21.60		
Limit	EIRP < 1W			Result	Pass



Appendix B. Test Results of Radiated Test

B1. Summary of each worse mode

Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	AmplCbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
5	Part 22H	WCDMA B5	M	3344	-54.89	RMS	29.60	-21.06	0.32	-95.23	31.48	-13.00	-41.89	V	Main
12	Part 24E	WCDMA B2	H	7635	-44.78	RMS	36.17	-17.38	0.51	-95.23	31.15	-13.00	-31.78	H	MIMO2
18	Part 27L	WCDMA B4	M	6930	-45.29	RMS	35.80	-17.67	0.53	-95.23	31.28	-13.00	-32.29	V	MIMO2

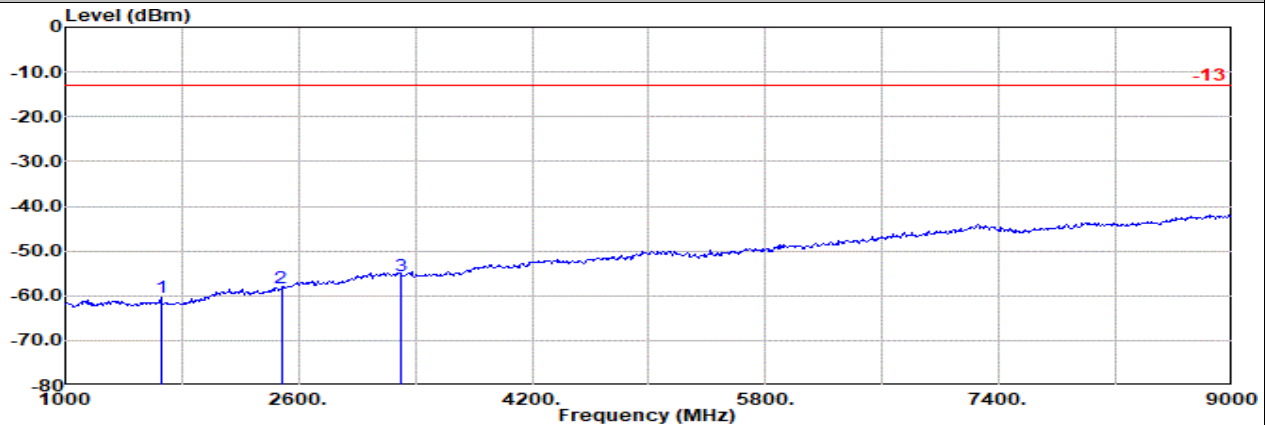


Ant Main

Part 22H Mode 5

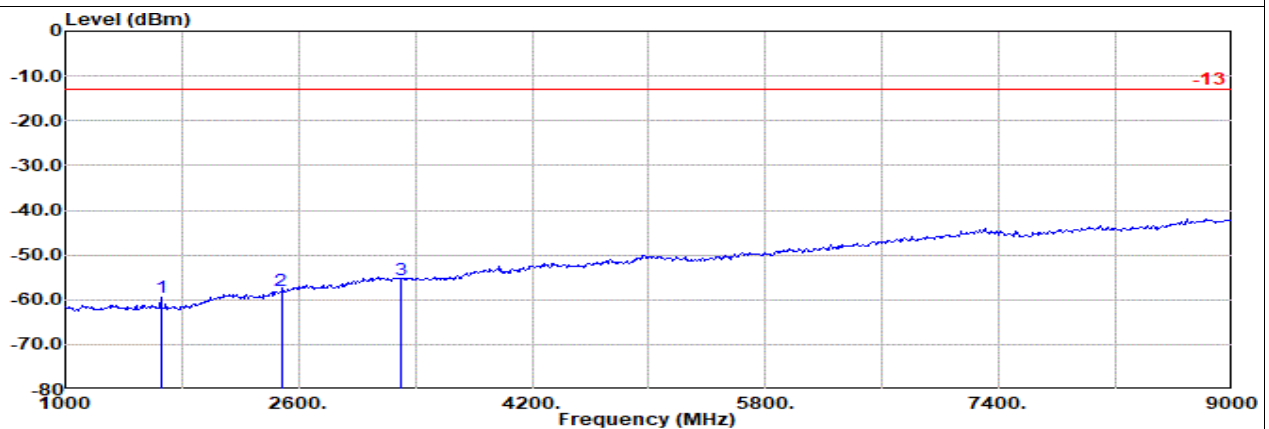
WCDMA B5 Ch4132

L



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Horizontal
: WCDMA B5 Ch4132

	Freq MHz	Level dBm	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1						
1	1656.00	-60.34	RMS	25.00	-24.40	0.48	-95.23	33.81	-13.00	-47.34	Horizontal
2	2480.00	-58.29	RMS	27.70	-22.44	0.43	-95.23	31.25	-13.00	-45.29	Horizontal
3	3304.00	-55.62	RMS	29.60	-21.13	0.32	-95.23	30.82	-13.00	-42.62	Horizontal



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Vertical
: WCDMA B5 Ch4132

	Freq MHz	Level dBm	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1						
1	1656.00	-59.61	RMS	25.00	-24.40	0.48	-95.23	34.54	-13.00	-46.61	Vertical
2	2480.00	-58.02	RMS	27.70	-22.44	0.43	-95.23	31.52	-13.00	-45.02	Vertical
3	3304.00	-55.50	RMS	29.60	-21.13	0.32	-95.23	30.94	-13.00	-42.50	Vertical

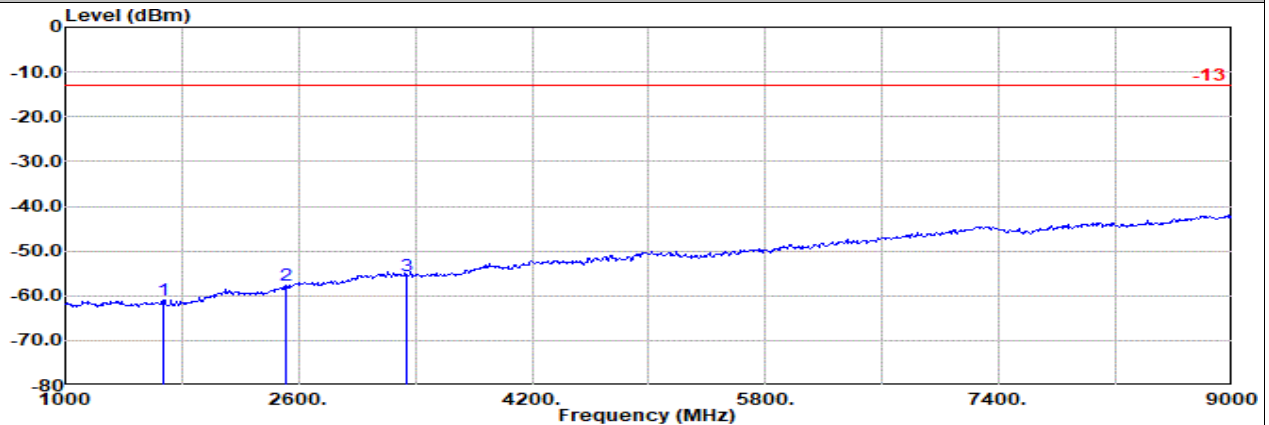


Ant Main

Part 22H Mode 5

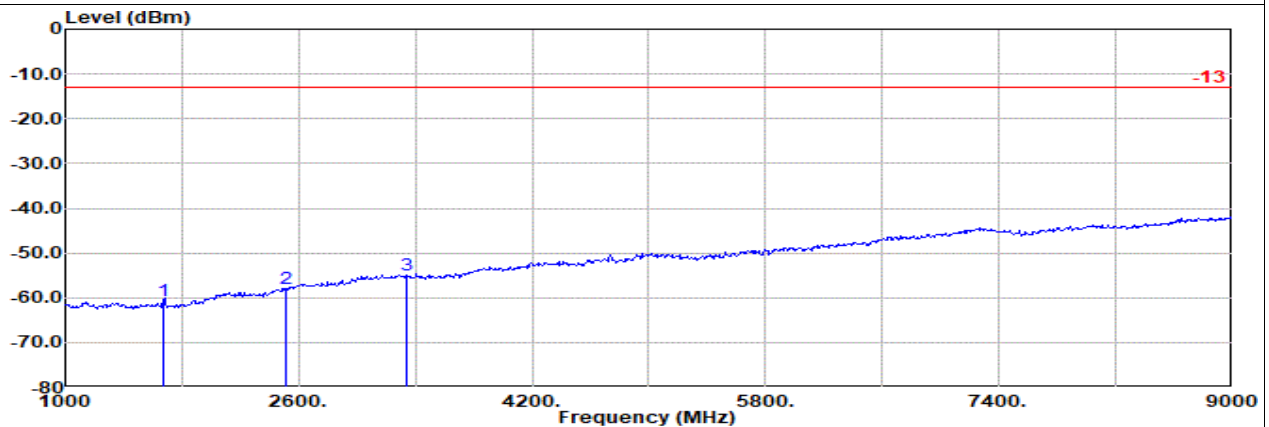
WCDMA B5 Ch4182

M



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Horizontal
: WCDMA B5 Ch4182

	Freq MHz	Level dBm	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1						
1	1672.00	-61.04	RMS	25.10	-24.35	0.47	-95.23	32.97	-13.00	-48.04	Horizontal
2	2512.00	-57.76	RMS	27.72	-22.38	0.44	-95.23	31.69	-13.00	-44.76	Horizontal
3	3344.00	-55.41	RMS	29.60	-21.06	0.32	-95.23	30.96	-13.00	-42.41	Horizontal



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Vertical
: WCDMA B5 Ch4182

	Freq MHz	Level dBm	Detector	Ant Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
				Factor	1						
1	1672.00	-60.68	RMS	25.10	-24.35	0.47	-95.23	33.33	-13.00	-47.68	Vertical
2	2512.00	-58.10	RMS	27.72	-22.38	0.44	-95.23	31.35	-13.00	-45.10	Vertical
3	3344.00	-54.89	RMS	29.60	-21.06	0.32	-95.23	31.48	-13.00	-41.89	Vertical

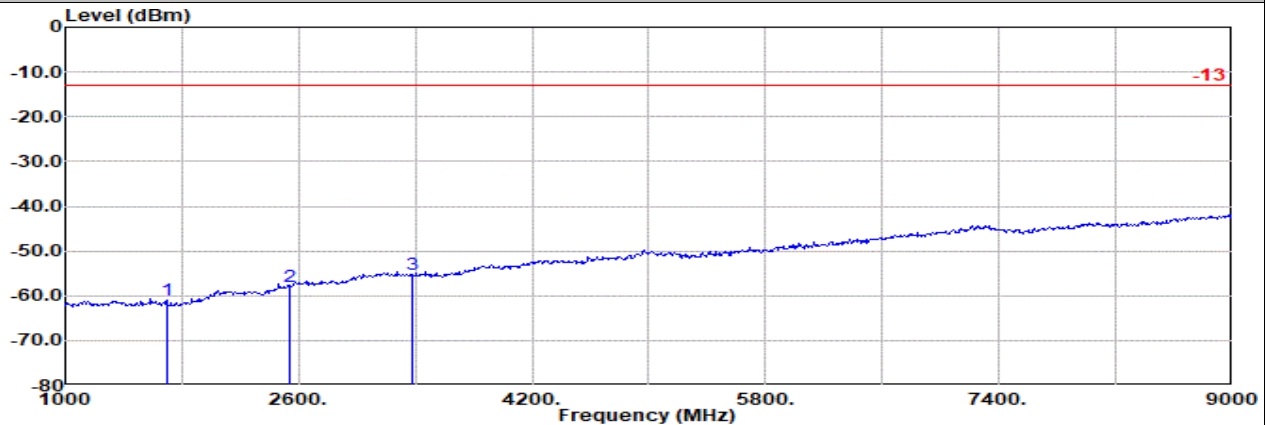


Ant Main

Part 22H Mode 5

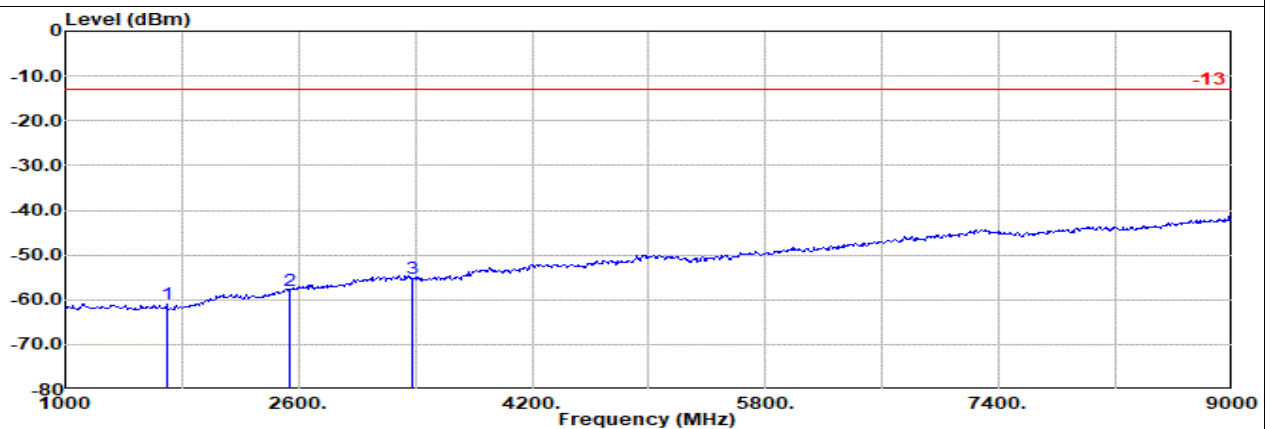
WCDMA B5 Ch4233

H



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Horizontal
: WCDMA B5 Ch4233

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Readin	Limit	Margin	Pol
				Factor	1		dB	dB				
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1696.00	-61.09	RMS		24.94	-24.28	0.47	-95.23	33.01	-13.00	-48.09	Horizontal
2	2536.00	-58.06	RMS		27.96	-22.34	0.44	-95.23	31.11	-13.00	-45.06	Horizontal
3	3384.00	-55.36	RMS		29.53	-21.00	0.32	-95.23	31.02	-13.00	-42.36	Horizontal



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Vertical
: WCDMA B5 Ch4233

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Readin	Limit	Margin	Pol
				Factor	1		dB	dB				
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	1696.00	-60.97	RMS		24.94	-24.28	0.47	-95.23	33.13	-13.00	-47.97	Vertical
2	2536.00	-57.96	RMS		27.96	-22.34	0.44	-95.23	31.21	-13.00	-44.96	Vertical
3	3384.00	-55.37	RMS		29.53	-21.00	0.32	-95.23	31.01	-13.00	-42.37	Vertical

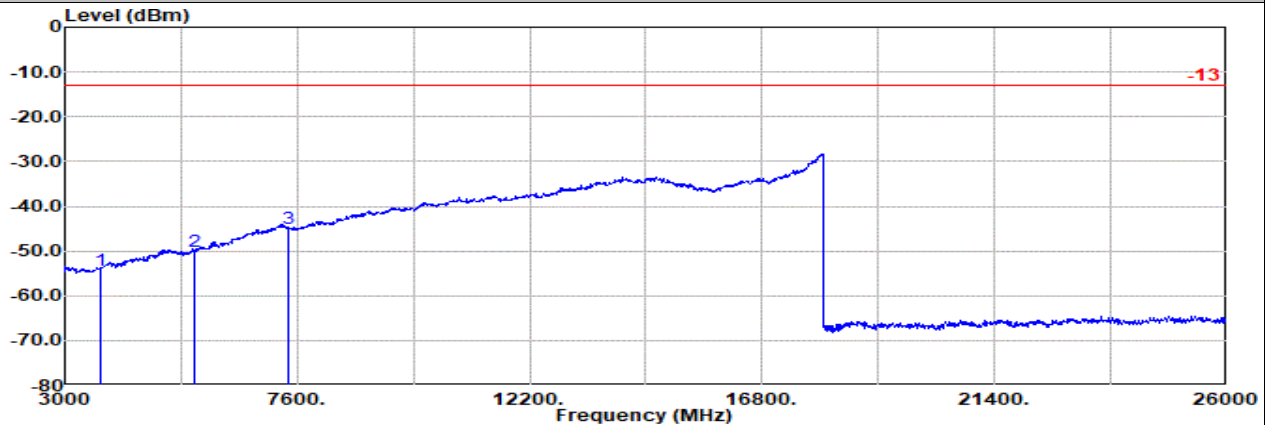


Ant MIMO2

Part 24E Mode 12

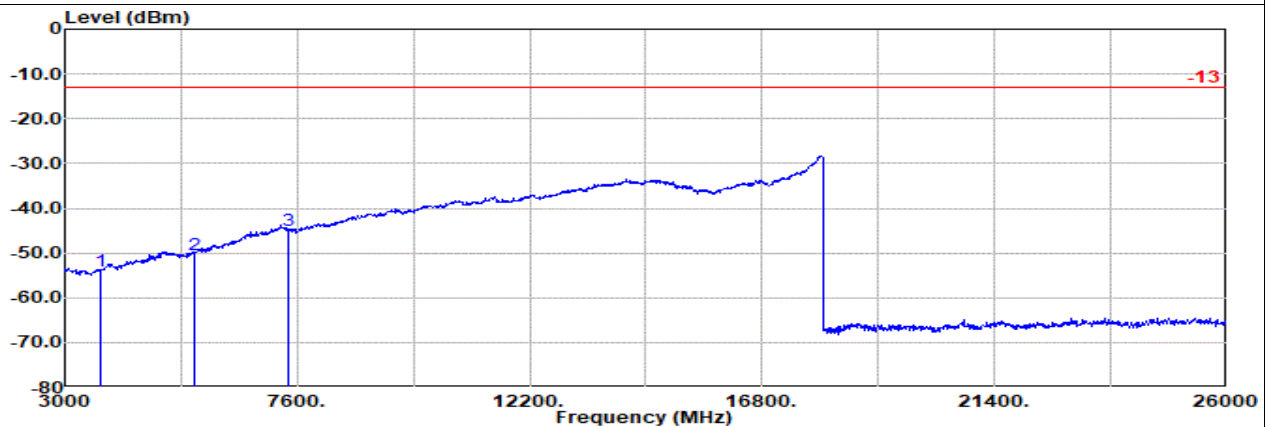
WCDMA B2 Ch9262

L



Site : 03CH16-HY
Condition: -13 1m SHF_1223_240624 Horizontal
: WCDMA B2 Ch9262

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3705.00	-54.26	RMS	29.63	-20.50	0.90	-95.23	30.94	-13.00	-41.26 Horizontal
2	5550.00	-50.13	RMS	32.80	-18.15	0.44	-95.23	30.01	-13.00	-37.13 Horizontal
3	7410.00	-44.88	RMS	36.38	-17.44	0.50	-95.23	30.91	-13.00	-31.88 Horizontal



Site : 03CH16-HY
Condition: -13 1m SHF_1223_240624 Vertical
: WCDMA B2 Ch9262

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3705.00	-54.09	RMS	29.63	-20.50	0.90	-95.23	31.11	-13.00	-41.09 Vertical
2	5550.00	-50.33	RMS	32.80	-18.15	0.44	-95.23	29.81	-13.00	-37.33 Vertical
3	7410.00	-44.91	RMS	36.38	-17.44	0.50	-95.23	30.88	-13.00	-31.91 Vertical

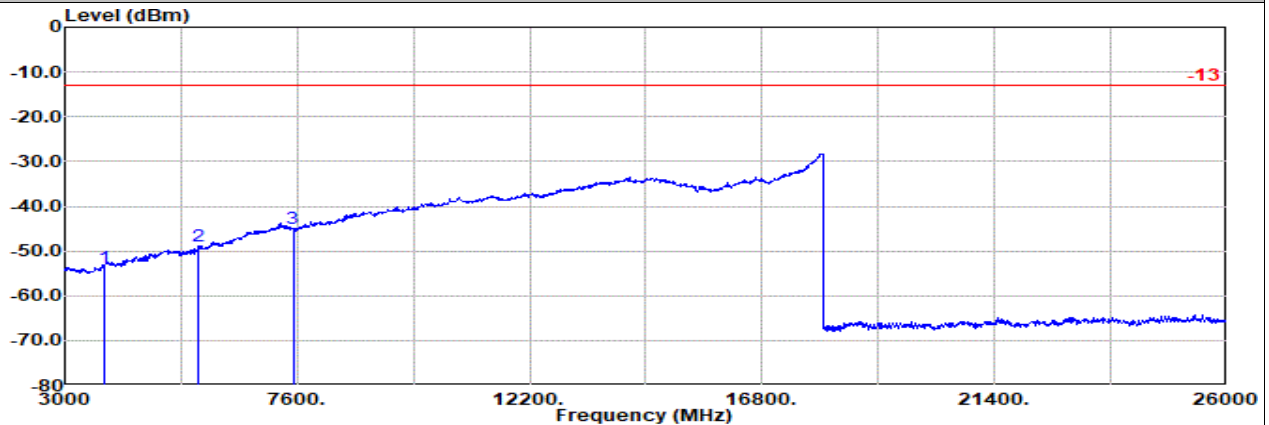


Ant MIMO2

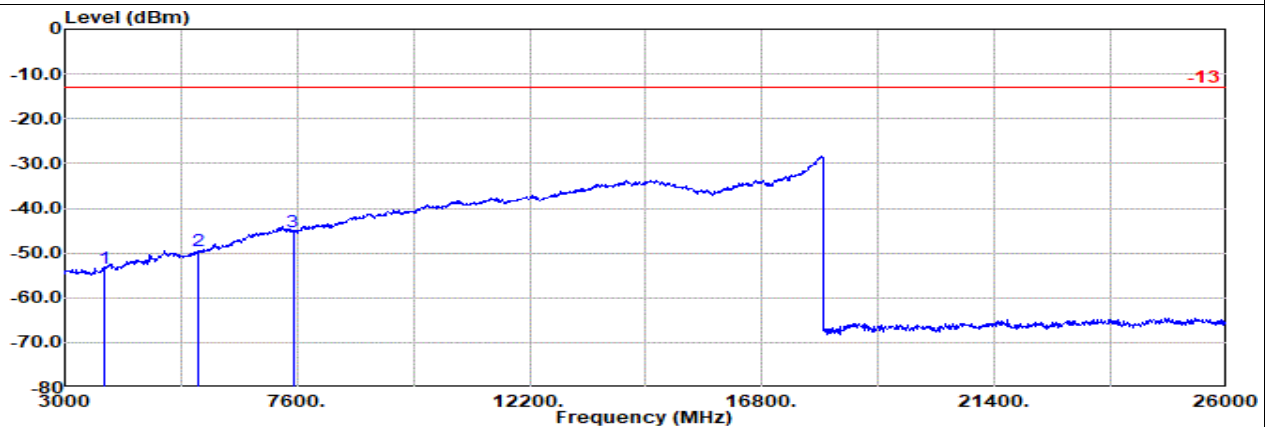
Part 24E Mode 12

WCDMA B2 Ch9400

M



	Freq	Level	Detector	Ant Amp\Cb Filter				Readin	Limit	Margin Pol	
				Factor	1	EIRPCF					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3765.00	-53.81	RMS	30.02	-20.41	0.85	-95.23	30.96	-13.00	-40.81	Horizontal
2	5640.00	-48.92	RMS	32.96	-18.10	0.44	-95.23	31.01	-13.00	-35.92	Horizontal
3	7515.00	-45.04	RMS	36.14	-17.40	0.52	-95.23	30.93	-13.00	-32.04	Horizontal



	Freq	Level	Detector	Ant Amp\Cb Filter				Readin	Limit	Margin Pol	
				Factor	1	EIRPCF					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3765.00	-53.50	RMS	30.02	-20.41	0.85	-95.23	31.27	-13.00	-40.50	Vertical
2	5640.00	-49.43	RMS	32.96	-18.10	0.44	-95.23	30.50	-13.00	-36.43	Vertical
3	7515.00	-45.14	RMS	36.14	-17.40	0.52	-95.23	30.83	-13.00	-32.14	Vertical

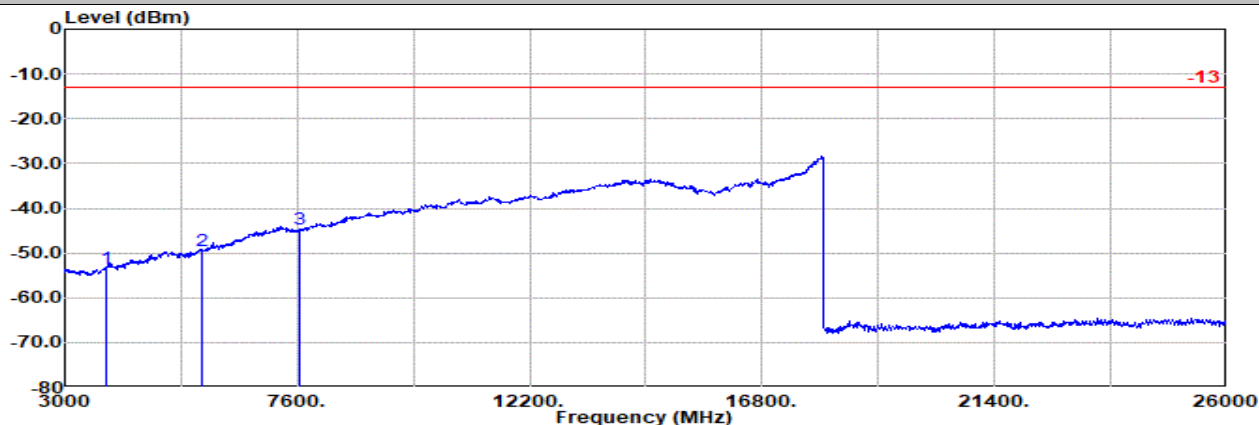


Ant MIMO2

Part 24E Mode 12

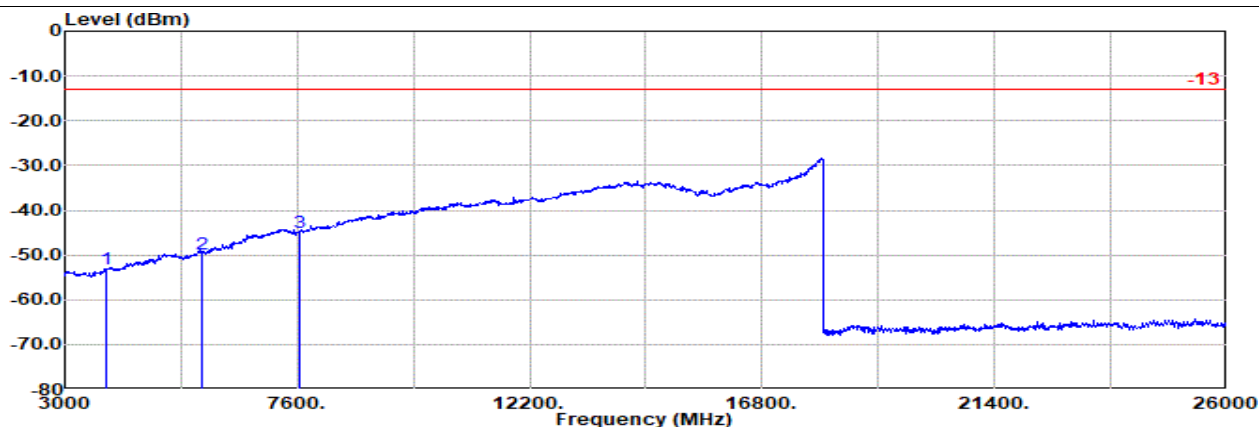
WCDMA B2 Ch9538

H



Site : 03CH16-HY
Condition: -13 1m SHF_1223_240624 Horizontal
: WCDMA B2 Ch9538

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3810.00	-53.29	RMS	30.38	-20.34	0.81	-95.23	31.09	-13.00	-40.29 Horizontal
2	5730.00	-49.40	RMS	33.46	-18.06	0.38	-95.23	30.05	-13.00	-36.40 Horizontal
3	7635.00	-44.78	RMS	36.17	-17.38	0.51	-95.23	31.15	-13.00	-31.78 Horizontal



Site : 03CH16-HY
Condition: -13 1m SHF_1223_240624 Vertical
: WCDMA B2 Ch9538

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3810.00	-53.22	RMS	30.38	-20.34	0.81	-95.23	31.16	-13.00	-40.22 Vertical
2	5730.00	-49.69	RMS	33.46	-18.06	0.38	-95.23	29.76	-13.00	-36.69 Vertical
3	7635.00	-44.98	RMS	36.17	-17.38	0.51	-95.23	30.95	-13.00	-31.98 Vertical

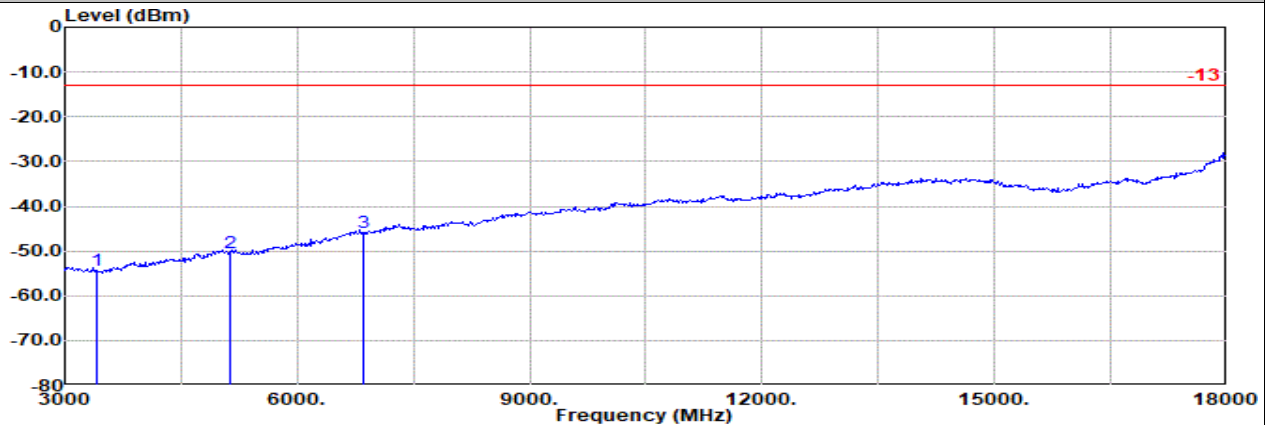


Ant MIMO2

Part 27L Mode 18

WCDMA B4 Ch1312

L

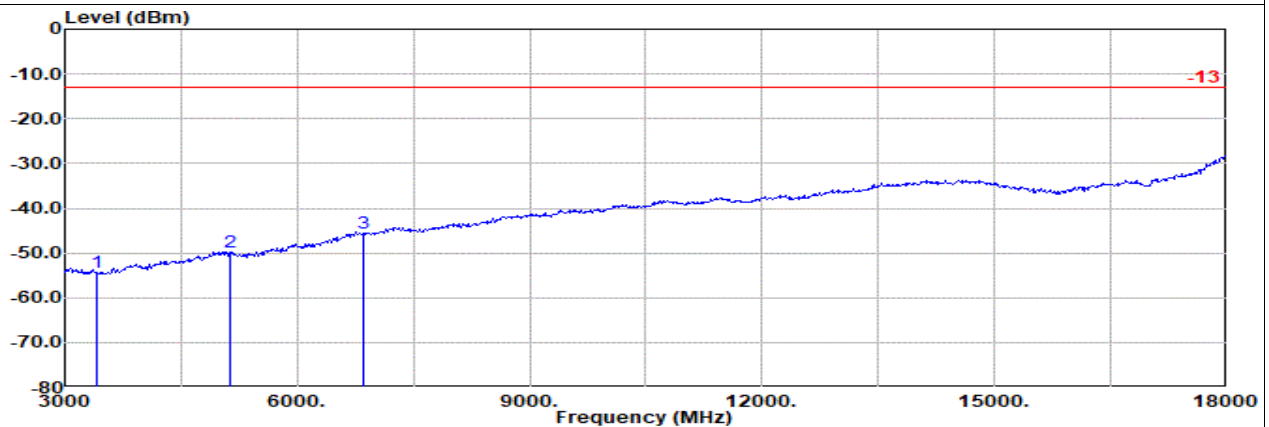


Site : 03CH16-HY

Condition: -13 3m 9120D-1522_240328 Horizontal

: WCDMA B4 Ch1312

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3420.00	-54.22	RMS	29.46	-20.94	0.94	-95.23	31.55	-13.00	-41.22 Horizontal
2	5130.00	-50.33	RMS	32.96	-18.57	0.40	-95.23	30.11	-13.00	-37.33 Horizontal
3	6855.00	-45.94	RMS	35.71	-17.68	0.58	-95.23	30.68	-13.00	-32.94 Horizontal



Site : 03CH16-HY

Condition: -13 3m 9120D-1522_240328 Vertical

: WCDMA B4 Ch1312

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3420.00	-54.41	RMS	29.46	-20.94	0.94	-95.23	31.36	-13.00	-41.41 Vertical
2	5130.00	-49.89	RMS	32.96	-18.57	0.40	-95.23	30.55	-13.00	-36.89 Vertical
3	6855.00	-45.61	RMS	35.71	-17.68	0.58	-95.23	31.01	-13.00	-32.61 Vertical

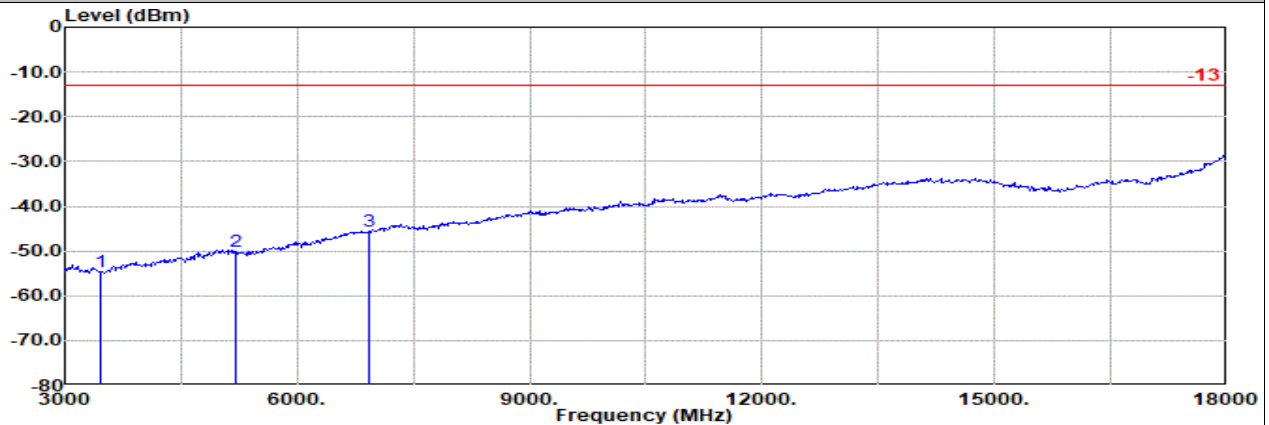


Ant MIMO2

Part 27L Mode 18

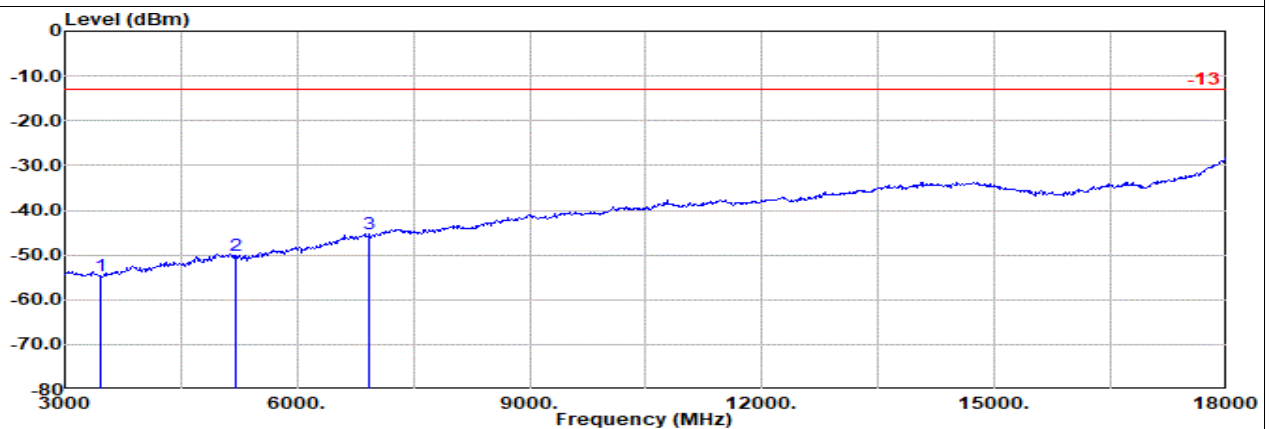
WCDMA B4 Ch1413

M



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Horizontal
: WCDMA B4 Ch1413

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3465.00	-54.71	RMS	29.40	-20.88	0.96	-95.23	31.04	-13.00	-41.71 Horizontal
2	5205.00	-50.05	RMS	32.99	-18.50	0.32	-95.23	30.37	-13.00	-37.05 Horizontal
3	6930.00	-45.59	RMS	35.80	-17.67	0.53	-95.23	30.98	-13.00	-32.59 Horizontal



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Vertical
: WCDMA B4 Ch1413

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3465.00	-54.50	RMS	29.40	-20.88	0.96	-95.23	31.25	-13.00	-41.50 Vertical
2	5205.00	-50.18	RMS	32.99	-18.50	0.32	-95.23	30.24	-13.00	-37.18 Vertical
3	6930.00	-45.29	RMS	35.80	-17.67	0.53	-95.23	31.28	-13.00	-32.29 Vertical

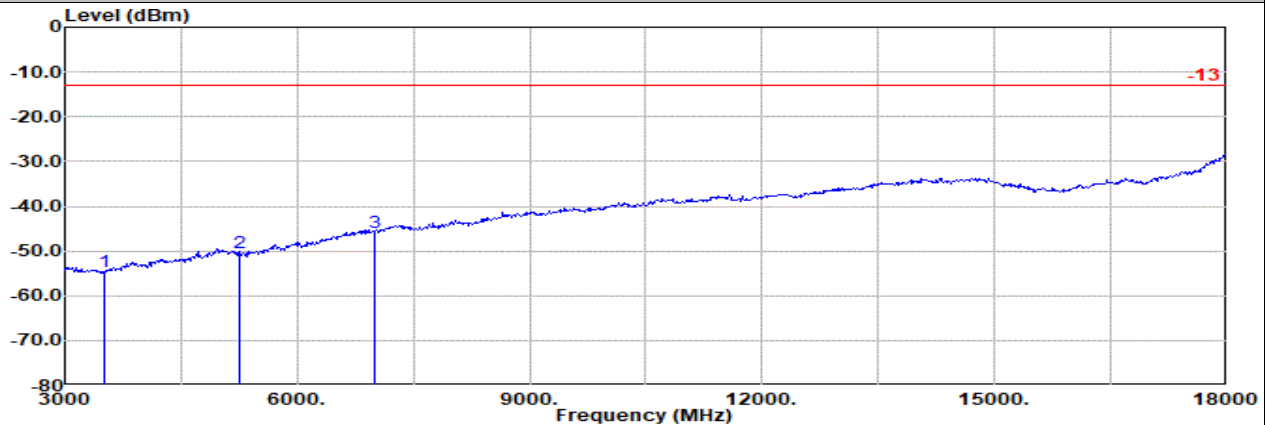


Ant MIMO2

Part 27L Mode 18

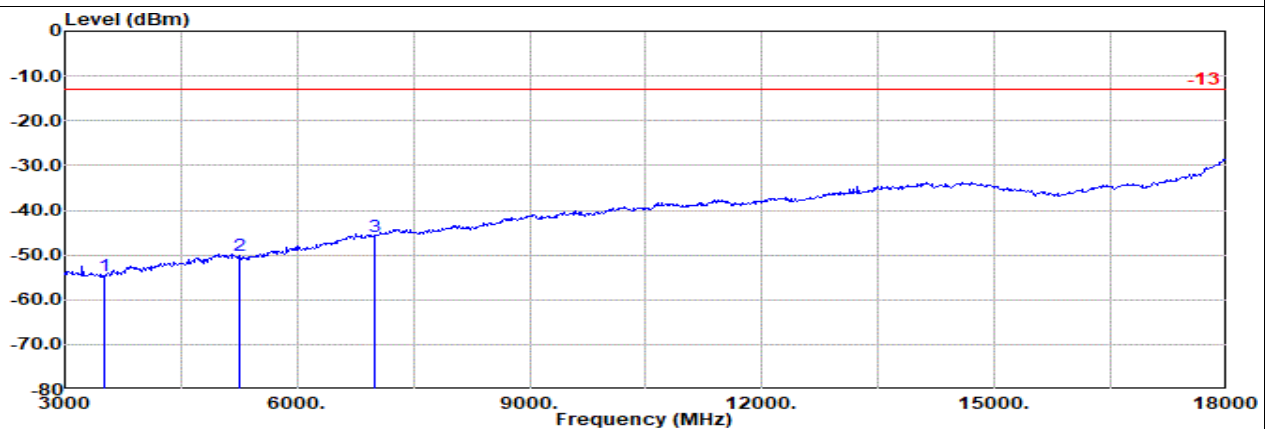
WCDMA B4 Ch1513

H



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Horizontal
: WCDMA B4 Ch1513

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3510.00	-54.73	RMS	29.42	-20.81	0.97	-95.23	30.92	-13.00	-41.73 Horizontal
2	5265.00	-50.53	RMS	32.87	-18.44	0.32	-95.23	29.95	-13.00	-37.53 Horizontal
3	7005.00	-45.74	RMS	35.82	-17.66	0.49	-95.23	30.84	-13.00	-32.74 Horizontal



Site : 03CH16-HY
Condition: -13 3m 9120D-1522_240328 Vertical
: WCDMA B4 Ch1513

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	3510.00	-54.67	RMS	29.42	-20.81	0.97	-95.23	30.98	-13.00	-41.67 Vertical
2	5265.00	-50.18	RMS	32.87	-18.44	0.32	-95.23	30.30	-13.00	-37.18 Vertical
3	7005.00	-45.74	RMS	35.82	-17.66	0.49	-95.23	30.84	-13.00	-32.74 Vertical

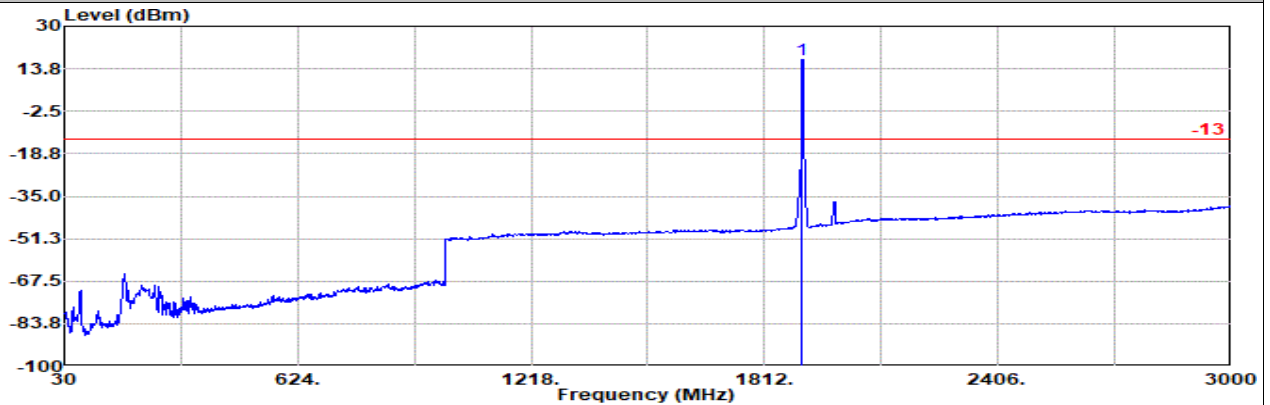


Ant MIMO2

Part 24E Mode 12

WCDMA B2 Ch9538

H



Site : 03CH16-HY

Condition: -13 3m CBL6111D _47020 & 06_241005 Horizontal

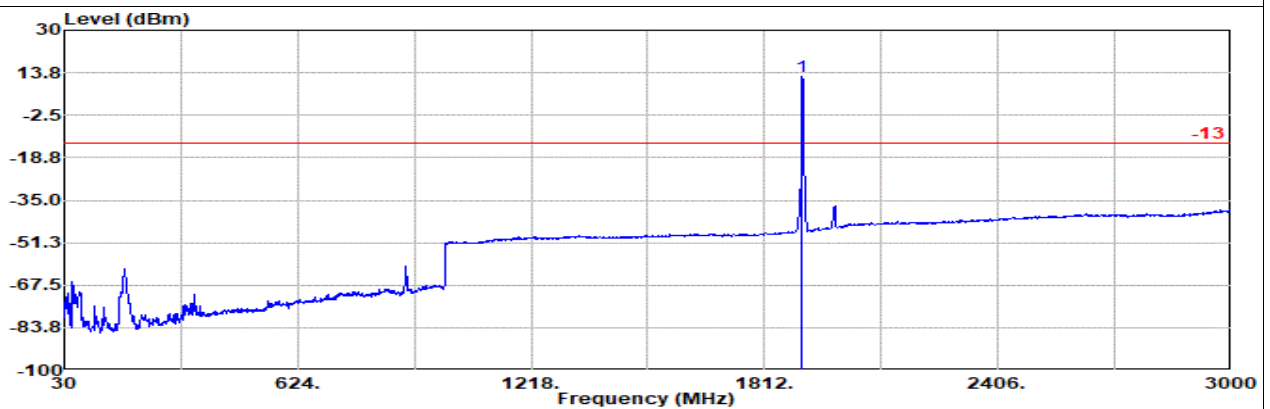
: WCDMA B2 Ch9538

: #1 is fundamental signal which can be ignored.

: #1 is fundamental signal which can be ignored.

: #1 is fundamental signal which can be ignored.

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dBuV	dBm	dB	
1	1907.00	17.11 RMS	25.60	6.87	0.00	-95.23	79.87	-13.00	30.11	Horizontal



Site : 03CH16-HY

Condition: -13 3m CBL6111D _47020 & 06_241005 Vertical

: WCDMA B2 Ch9538

: #1 is fundamental signal which can be ignored.

: #1 is fundamental signal which can be ignored.

: #1 is fundamental signal which can be ignored.

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dBuV	dBm	dB	
1	1907.00	12.10 RMS	25.60	6.87	0.00	-95.23	74.86	-13.00	25.10	Vertical

Remark: #1 is fundamental signal which can be ignored.